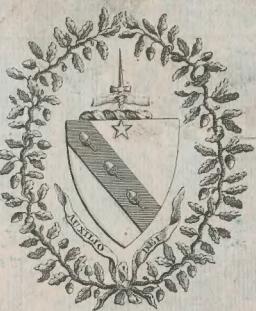
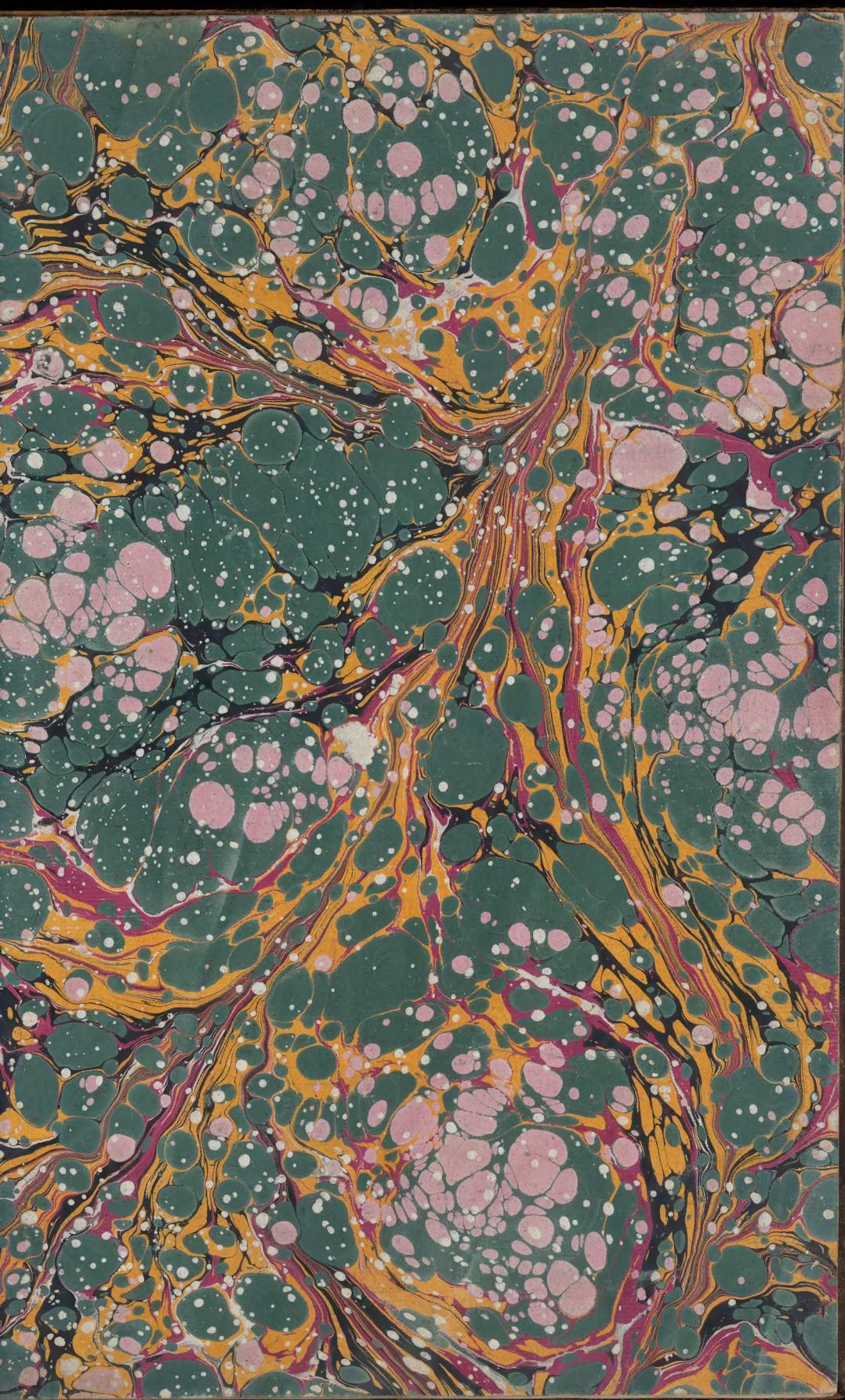




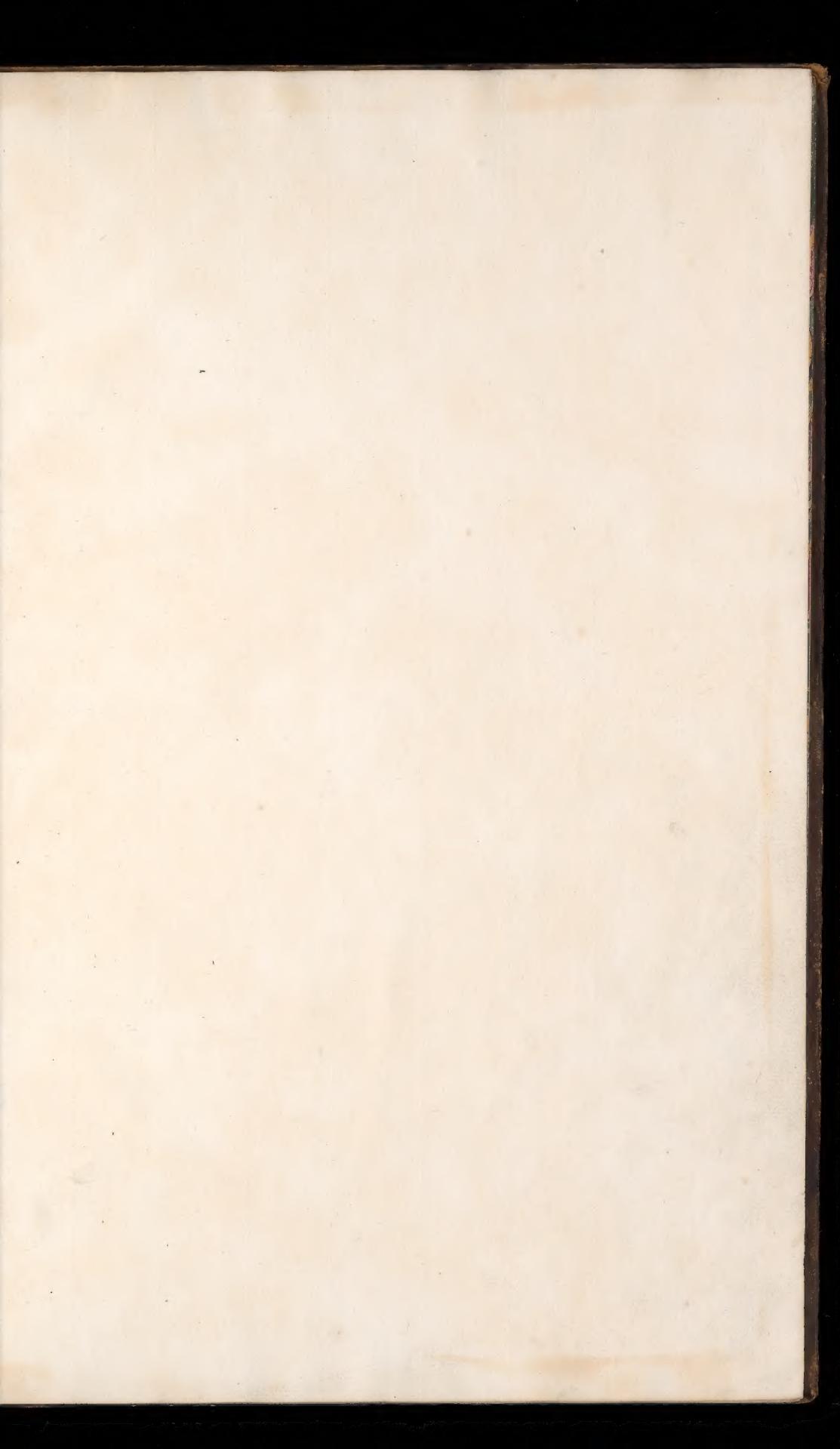


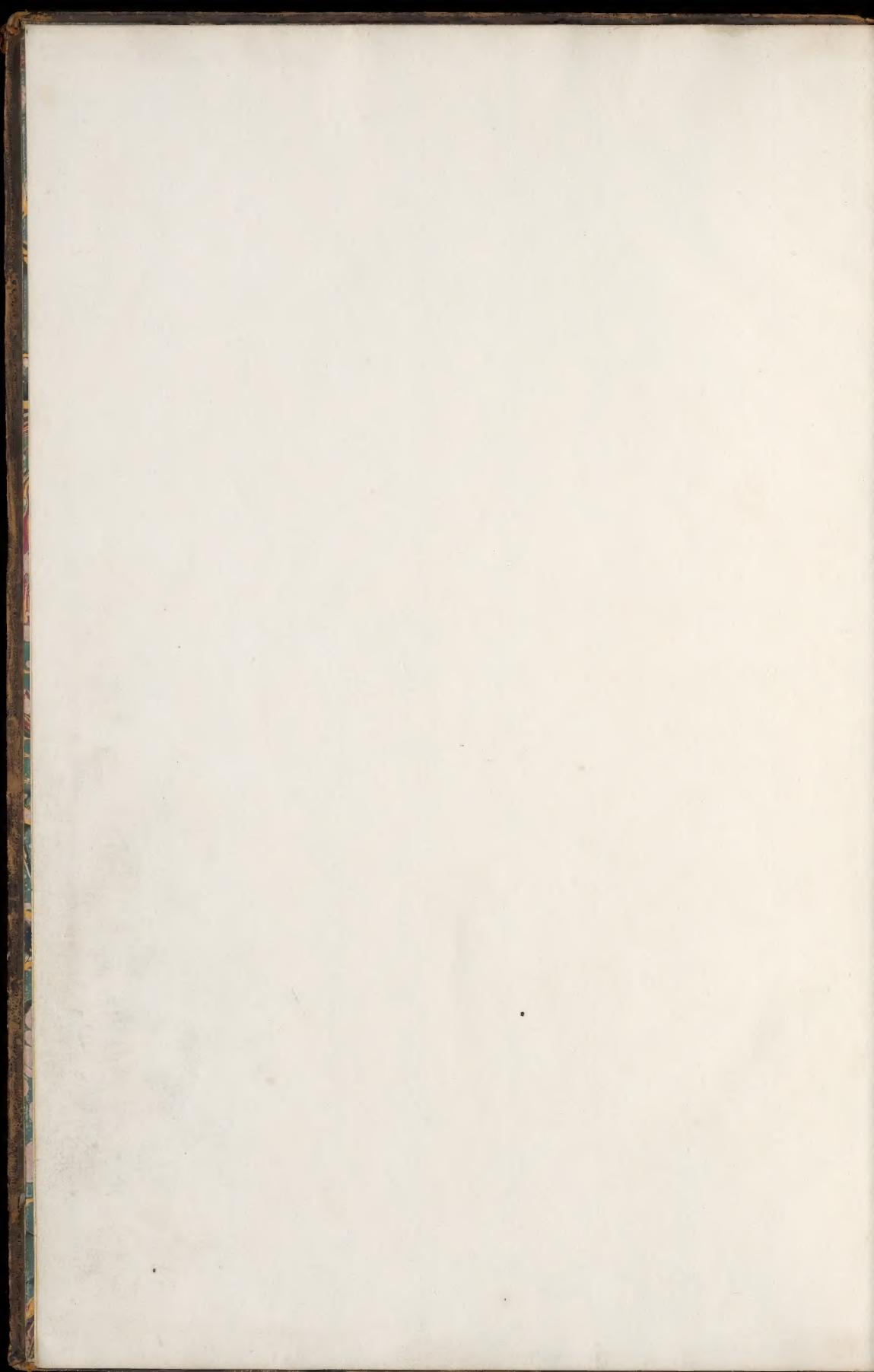
William Morehead Esq.





1816





Printed Books  
of Civil and  
Military  
Architecture  
with  
Technical  
and  
Geometrical  
Explanations  
and  
Town Gates of Several Places



A  
C O U R S E  
O F T H E  
F I V E O R D E R S  
O F  
CIVIL ARCHITECTURE,  
W I T H A P L A N,  
A N D S O M E  
G E O M E T R I C A L E L E V A T I O N S  
O F  
T o w n G a t e s o f F o r t i f i e d P l a c e s .

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By J. LANDMANN,  
PROFESSOR OF FORTIFICATION AND ARTILLERY  
TO THE  
ROYAL MILITARY ACADEMY AT WOOLWICH.

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The FIVE ORDERS are taken from Mr. CHAMBERS's  
Elegant Treatise on CIVIL ARCHITECTURE.

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L O N D O N ;  
P R I N T E D F O R T H E A U T H O R ,  
B Y J A M E S D I X W E L L , I N S T . M A R T I N ' S L A N E , C H A R I N G C R O S S ;  
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GEOMETRICAL EXPLANATION

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TOWN GEOMETRICAL PLACES

W A T T A M

EXPLANATION OF THE USES OF THE PLACES  
IN THE CIVIL ARCHITECTURE

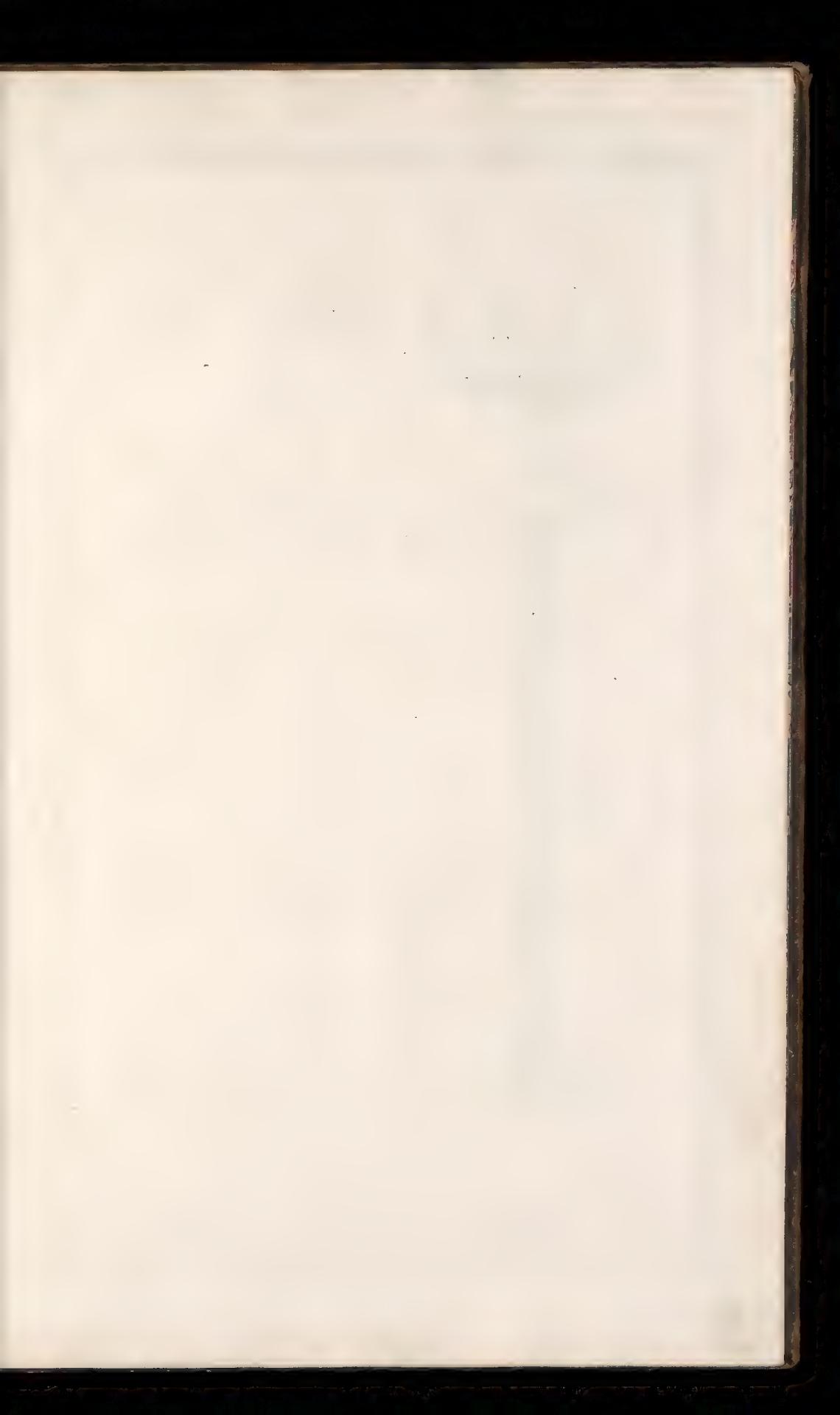
THE USES OF THE PLACES IN THE CIVIL ARCHITECTURE  
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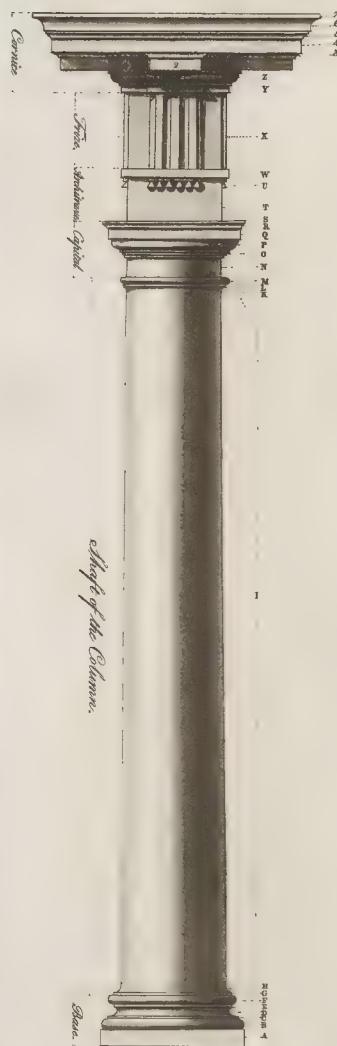
EXPLANATION OF THE USES OF THE PLACES  
IN THE CIVIL ARCHITECTURE

THE USES OF THE PLACES IN THE CIVIL ARCHITECTURE  
EXPLAINED IN THE TOWN GEOMETRICAL PLACES

W A T T A M



*The Doric Order in its  
Improved State.*



- A. *Hinth.*
- B. *Lower Torus.*
- C. *Fillet or square.*
- D. *Scotia.*
- E. *Fillet.*
- F. *Upper Torus.*
- G. *Fillet or lower Cincture.*
- H. *Cunge.*
- I. *Shaft of the Column.*
- K. *Cunge.*
- L. *Fillet or upper Cincture.*
- M. *Astragal.*
- N. *Neck or Trize of the Capital.*
- O. *Fillets or Annulets.*
- P. *Ovolo or Echinus.*
- Q. *Abacus.*
- R. *Inverted Cyma or Ogee.*
- S. *Fillet.*
- T. *Fascia of the Architrave.*
- U. *Drops.*
- W. *Fillet, or Tenia.*
- X. *Triglyph.*
- Y. *Capital of the Triglyphs.*
- Z. *Ovolo or quarter round.*
- 1. *Mitile or Modillion Band.*
- 2. *Muriles.*
- 3. *Ogee.*
- 4. *Corona or Drip.*
- 5. *Ogee.*
- 6. *Cavetto.*
- 7. *Fillet.*

O F T H E

O R D E R S

O F

A R C H I T E C T U R E

I N G E N E R A L.

AN Order consists of two principal members, the Column and the Entablature; each of which is composed of three principal parts. Those of the column are the Base, the Shaft, and the Capital; and those of the entablature are the Architrave, the Frize, and the Cornice. (Pl. 1.) All these are subdivided into many lesser parts, whose number, form, and dimensions characterize each order, and express the degree of strength, delicacy, richness, or simplicity peculiar to it.

There are five Orders, (Pl. 2.) three are called Grecian; viz. the Doric, the Ionic, the Corinthian; and two Latin, the Tuscan, and the Composite.

The simplest and most solid of all these is the *Tuscan*. It is composed of few parts, devoid of ornaments, and of a construction so massive, that it seems capable of supporting the heaviest burden.

The *Doric* is next in strength to the *Tuscan*; and being of a grave, robust, and masculine aspect, is by Scamozzi called the *Herculean*. As it

is the most ancient of all the orders, it retains more of the structure of the primitive huts than any of the rest; having Triglyphs in its Frize, to represent the ends of the joists; and Mutules in its Cornice, to represent the rafters: its Column being likewise, in various antiques, executed without a base, in imitation of the trees used in the first buildings, without any plinths to raise them above the ground.

The *Ionic* (Pl. 2.) is of a more slender make than either of the above-mentioned Orders. Its appearance is simple, yet graceful and majestic; its ornaments are few, nor is there any thing exaggerated, or remarkably striking, in any of its parts.

" The *Corinthian*, says Sir H. Wotton, is a column lasciviously decked, " like a wanton courtezan." Its proportions are extremely elegant. It is divided into a great variety of members, and enriched with a profusion of ornaments.

The *Composite* is, properly speaking, only a species of the Corinthian; and therefore retains, in a great measure, the same character.

The Proportions of the Orders were, by the ancients, formed on those of the human body; and consequently it could not be their intention to make a Corinthian column as thick and much taller than a Doric one, which is designed to represent the bulk and vigour of a full-grown man.

Columns, in the opinion of Scamozzi, should not be less than seven of their diameters in height, nor more than ten; the former being a good proportion in the Tuscan, and the latter in the Corinthian order. The practice of the ancients in their best works, is conformable to this precept: for which reason Mr. Chambers has, according to the doctrine of Vitruvius, made the Tuscan column seven diameters in height, the Doric eight; and the Ionic nine (as Palladio and Vignola have done), and the Corinthian and Composite ten; which last is a mean proportion between the proportions observed in the Panthæon, and in the three Columns, both which are counted excellent models of the Corinthian order.

The height of the Entablature, in all the orders, is according to Mr. Chambers, one quarter of the height of the column, which was the common

*Pl. II.*

*Corinthian*



-Q



-O

-N

*Composite*



-G

-F

*Tuscan*



-C

-B

*Doric*



-E

-D

*Ionic*

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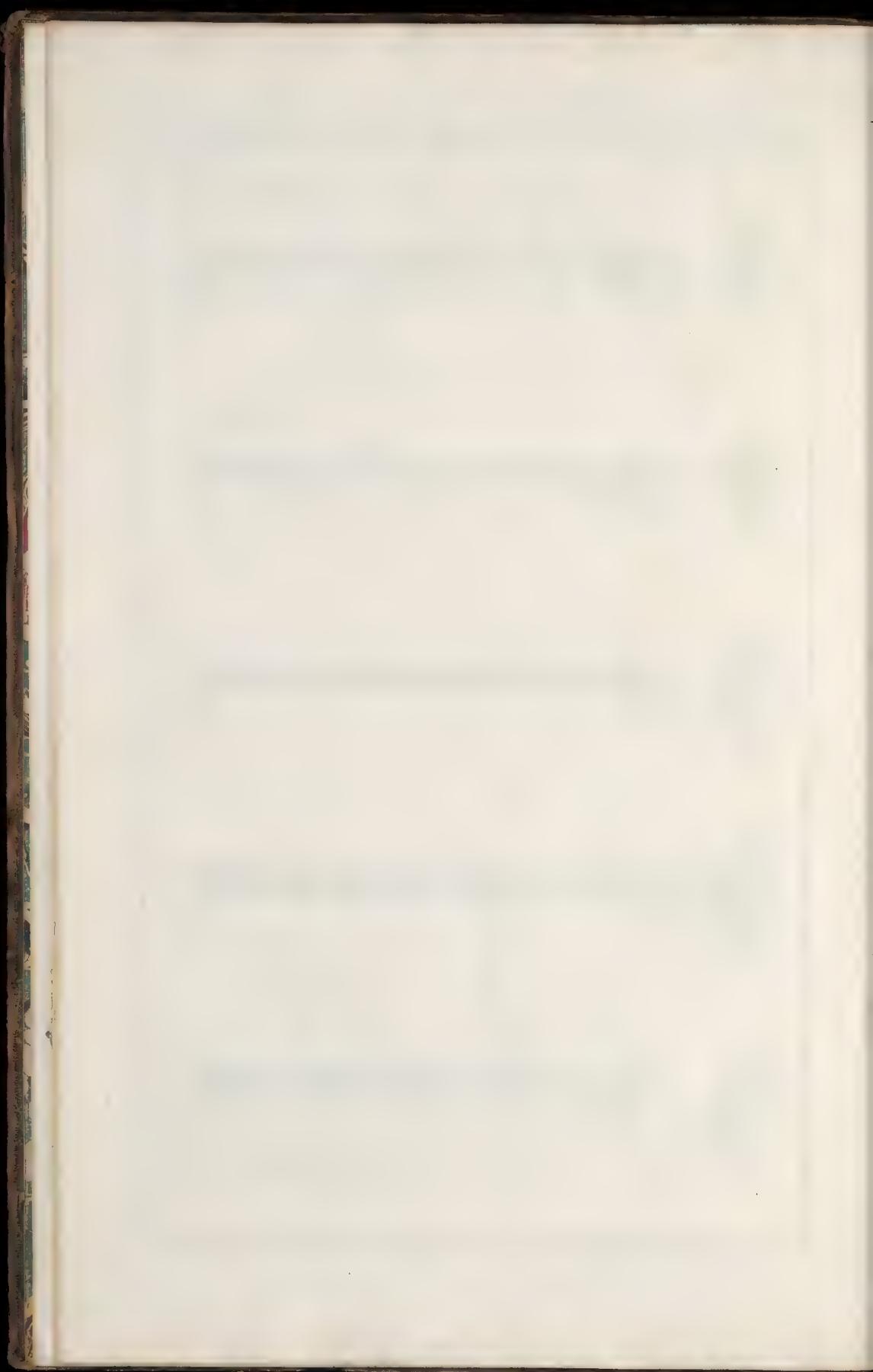
H

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mon practice of the ancients, who in all sorts of entablatures, seldom exceeded or fell much short of that measure.

The whole height BC (Pl. 2.) of the Entablature in all orders except the Doric is, according to Perrault, divided into ten equal parts; three of which he gives to the Architrave BD; three to the Frize DE; and four to the Cornice EC. And in the Doric order he divides the height FG into eight equal parts; of which two are given to the Architrave, three to the Frize, and three to the Cornice.

The dimensions of the Mouldings and the lesser parts that compose an order, are determined by the semi-diameter of the column, taken at the bottom of the shaft, and is called Module. This module is divided by Vignola, in his Tuscan and Doric orders, into twelve parts; and for the Mouldings of the Ionic, Corinthian, and Composite into eighteen parts. Mr. Chambers has given a general division for all the orders in dividing the Semi-diameter or Module into thirty Minutes; this last division being the most accurate to express all the parts of an order, it will be the Scale to construct the different orders in this treatise.

Columns, in imitation of trees, from which they drew their origin, are tapered in their Shafts. In the antiques the diminution is variously performed; beginning sometimes from the foot of the shaft, and at others from the quarter, or one third of its height; the lower part being perfectly cylindrical. The former of these was most in use amongst the ancients; and being the most natural and graceful ought to have the preference, though the latter has been more universally practised by modern artists.

" The first architects, says Mr. Auzolt, made their columns in straight lines in imitation of trees;" so that their Shaft was a frustum of a cone: but finding this form abrupt and disagreeable, they made use of some curve, which, springing from the extremity of the superior and inferior diameters of the column, swelled beyond the sides of the cone, and by that means gave a more pleasing figure to the contour.

Mons. Blondel, in his book intitled *Réolution des quatre principaux problèmes d'Architecture*, teaches various manners of diminishing columns; the best and simplest of which is by means of the instrument which Nicomedes invented

vented, to describe the first conchoid: for this being applied at the bottom of the shaft, performs at one sweep both the swelling and the diminution; giving such a graceful form to the column, that it is universally allowed to be the most perfect practice hitherto discovered. The Columns in the Panthéon, accounted the most beautiful among the antiques, are made in this manner; as appears by the exact measures of one of them to be found in Degodet's Antiquities of Rome.

To give an accurate idea of the Operation, it will be necessary first to describe Vignola's method of diminishing, on which it is grounded. " As to this second method, says Vignola, it is a discovery of my own; and although it be less known than the former, it will be easily comprehended by the figure. Having therefore determined the measure of your Column, (that is to say, the height of the shaft, and its inferior and superior diameters) (Pl. 3.) draw a line indefinitely from C through D, perpendicular to the axis of the column: This done set off the distance CD, which is the inferior semi-diameter; from A, the extreme point of the superior semi-diameter, to B, a point in the axis; then from A, through B, draw the line ABE, which will cut the indefinite line CD in E; and from that point of intersection E, draw through the axis of the column any number of rays as Eba, on each of which, from the axis towards the circumference, setting off the interval CD, you may find any number of points, a, a, a, through which if a curve is drawn, it will describe the swelling and diminution of the column."

Though this method be sufficiently accurate for practice, especially if a considerable number of points be found, yet, strictly speaking, it is defective; as the curve must either be drawn by hand, or by applying a flexible ruler to all the points; both of which are liable to variation. Blondel therefore, to obviate this objection, (after having proved the curve passing from A to C through the points aa, to be of the same nature with the first conchoid of the ancients), employed the instrument of Nicomedes to describe it; the construction of which is as follows.

Having determined (Plate 3, Fig. 1, 2) as above, the length of the shaft, with the inferior and superior diameters of the column, and having likewise found the length of the line CDE; take three rulers, either of wood or metal, as FG, ID, and AH; of which let FG and ID be fastened

*Regular mouldings with their proper ornaments.*

*Ornaments for the astragal.*



*Ornaments for the cornice.*



*Ornaments for flat members.*



*Ornaments for the circle.*



*Ornaments for cornices of different sizes.*



*Ornaments for the Cyma.*



*Ornaments of the corbel.*



*Ornaments for flat members.*



*Sabre, ciselé, or square.*



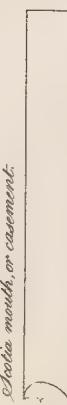
*Astrolab or band.*



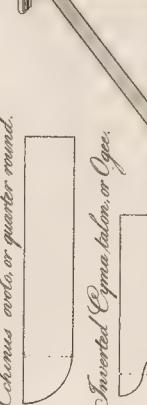
*Stones or lone.*



*Sabre mouth or cavement.*



*Clinus cavello, or quarter round.*



*Inverted Cyma, talon, or Ogee.*



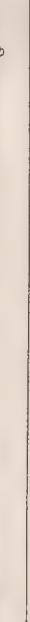
*Cyma, cyma recta, or cornacion.*



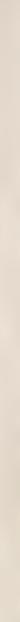
*Cavetto or hollow.*



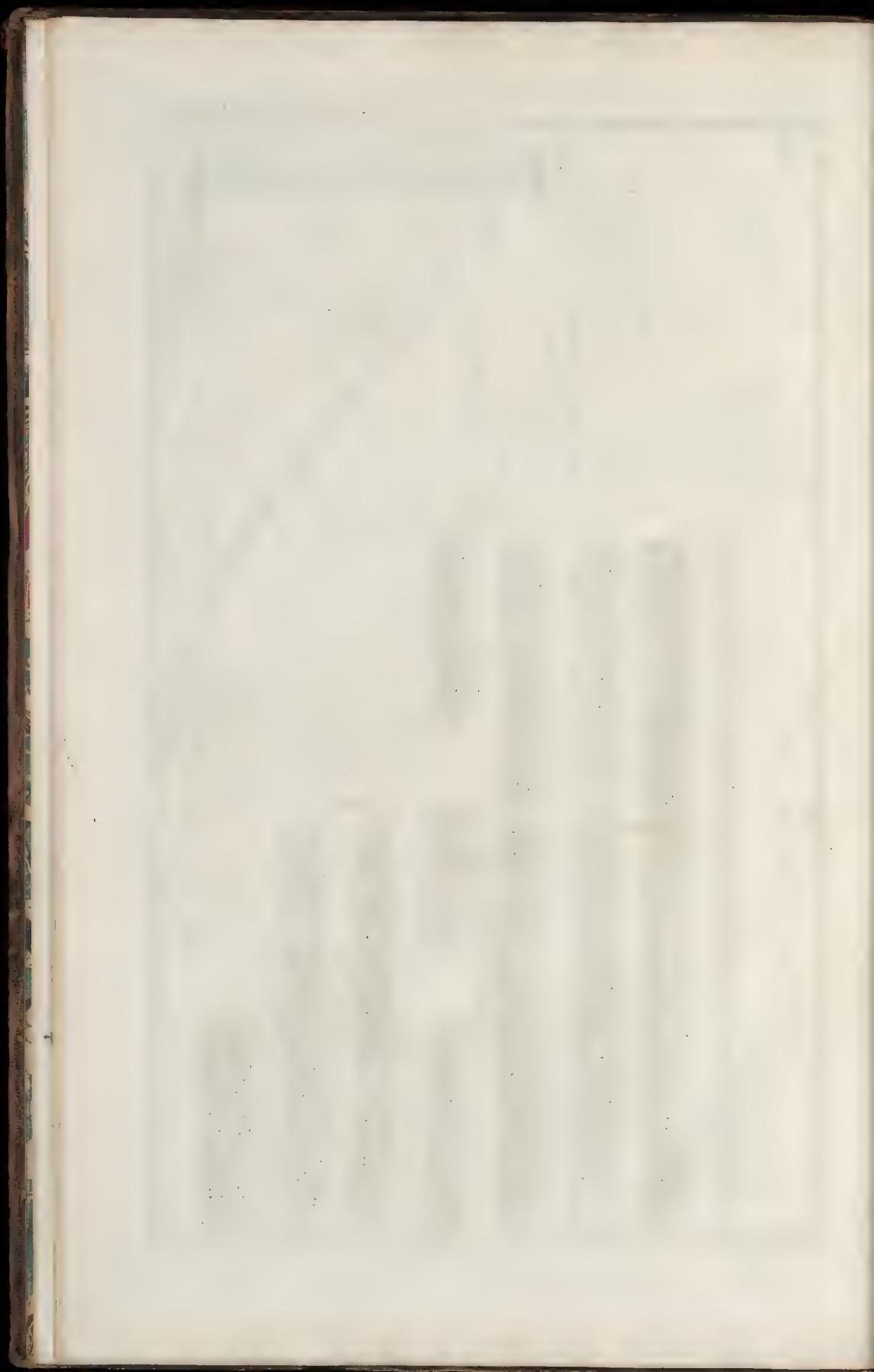
*Groove in FG*



*Button at B*



*Fig. 3.*

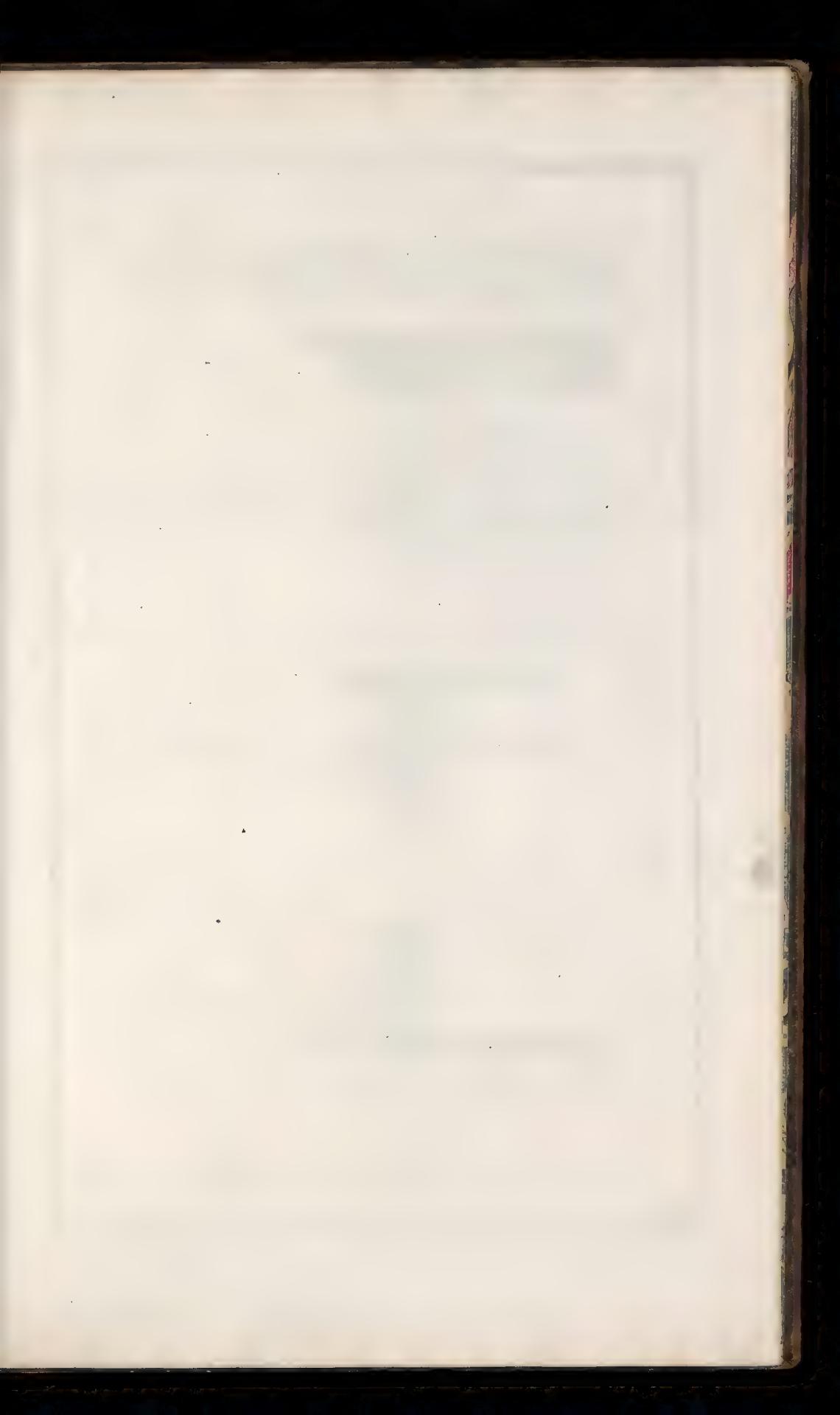


tened together at right angles in G. Cut a dove-tail groove in the middle of FG, from top to bottom; and at the point E at the ruler ID, (whose distance from the middle of the groove in FG, is the same as that of the point of intersection from the axis of the column) fix a pin; then on the ruler AH set off the distance AB, equal to CD the inferior semi-diameter of the column, and at the point B fix a button, whose head must be exactly fitted to the groove made in FG, in which it is to slide; and at the other extremity of the ruler AH, cut a slit or canal from H to K, whose length must not be less than the difference of length between EB and ED; and whose breadth must be sufficient to admit the pin fixed at E, which must pass through the slit, that the ruler may slide thereon.

The Instrument being thus completed; if the middle of the groove, in the ruler FG, be placed exactly over the axis of the column, it is evident, that the ruler AH, in moving along the groove, will with the extremity A describe the curve AaaC; which curve is the same as that produced by Vignola's method of diminution, supposing it done with the utmost accuracy: for the interval AB, ab is always the same; and the point E is the origin of an infinity of lines, of which the parts BA, ba, ba, extending from the axis to the circumference, are equal to each other and to DC. And if the rulers be of an indefinite size, and the pins at E and B be made to move along their respective rulers, so that the intervals AB and DE may be augmented or diminished at pleasure; it is likewise evident, that the same instrument may be thus applied to columns of any size.

In the remains of antiquity the diminution of the superior diameter of the Shaft is various; but seldom less than one eighth of the inferior diameter of the column, nor more than one sixth of it. The last of these is by Vitruvius esteemed the most perfect. Vignola has employed it in four of his orders, as Mr. Chambers does in all of them; there being no reason for diminishing the Tuscan column more in proportion to its diameter, than any of the rest, though it be the doctrine of Vitruvius, and the practice of Palladio, Vignola, Scamozzi, and almost all the modern architects. On the contrary, as Perrault observes, its diminution ought rather to be less; as it actually is in the Trajan Column, in which it is only one ninth. For even when the same proportion is kept through all the orders, the absolute quantity of the diminution in the Tuscan Order, supposing the columns of the

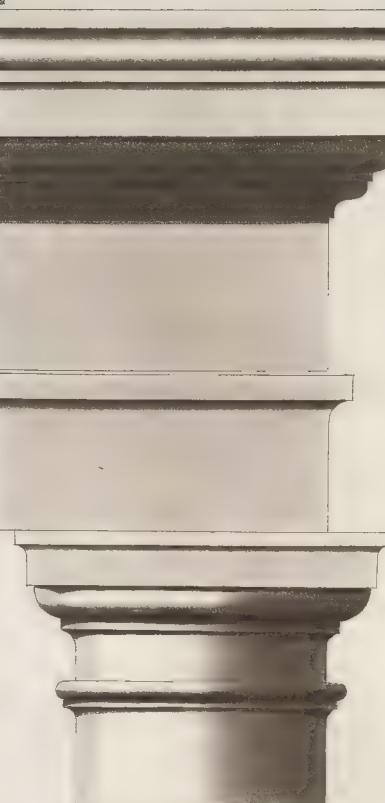
same height, exceeds that of the Corinthian in the ratio of ten to seven; and if, according to the common practice, the Tuscan column be less, by one quarter, at the top than at its foot, the difference between the diminution in the Tuscan and in the Corinthian columns will be as fifteen to seven; and in the Tuscan and Doric nearly as fifteen to nine: so that notwithstanding there is a very considerable difference between the lower diameters of a Tuscan and a Doric column, both being of the same height, yet the diameters at their top will be nearly equal; and consequently the Tuscan column will in reality be no stronger than the Doric one, which is repugnant to the character of the order.



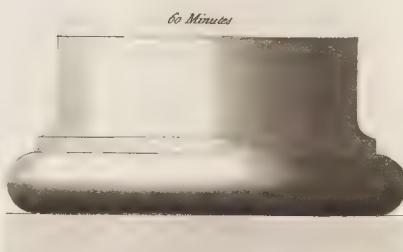
*The Tuscan Order*

Project's or Min. Height

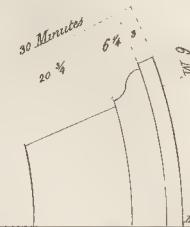
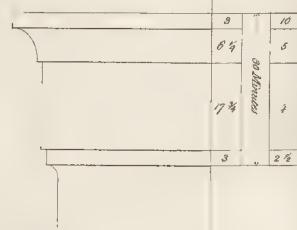
42	*	8 1/2
		8 3/4
33 1/2		2 1/4
31		10 3/4
16		7 1/2
9		2
8		7 1/2
	*	8
		20 1/2 Minutes
5 1/2	*	8 1/2
		20 1/2 Minutes
12 1/2	*	3
10		7 1/2
9		6 1/2
2 1/2		2 1/2
5	*	10
		20 1/2 Minutes
2 1/2	*	8 1/2
		20 1/2 Minutes
4	*	3
11		12
11		15



30 Minutes



60 Minutes

Tuscan archivolt and Impost  
for arches with Pedestals.Tuscan Impost for arches  
without Pedestals.

5 10 15 20 25 30 Minutes

1

2

3

4 Modules

3	*	10
		7 1/2
7 1/2		6 1/2
6 1/2		6
11 1/2		11 1/2
		3 1/2
		4

9	*	10
		8 1/2
8 1/2		6
7 1/2		4
3		2 1/2

O F T H E

## TUSCAN ORDER.

THE height A B (Pl. 2.) of the Column is fourteen modules, or seven diameters, and that of the whole Entablature B C three and a half module: which being divided into ten equal parts, three of them are for the height of the Architrave, three for the Frize, and the remaining four for the Cornice. The Capital is in height one module; the Base, including the lower Cincture of the shaft, is also one module; and the Shaft, with its upper Cincture and Aftragal, twelve modules.

These are the general measures of the order. As to the particular dimensions of the minuter parts, they may be collected from the design, Plate 4, where the heights and proportions are accurately marked; the latter being counted from perpendiculars raised at the extremities of the inferior and superior diameters of the shaft: a method preferable to that of the Chambrey and Degodetz, who count from the axis of the column; because the relations between the heights and projections are more perceptible; and whenever a cornice, or entablature is to be executed without a column, which very frequently happens, it requires no additional labour, as the trouble of deducting from each of the dimensions the semi-diameter is saved.

The Tuscan Order, carrying with it an idea of strength, is very proper to be employed for Gates of fortified Places, Citadels, Sea-Ports, Arsenals,

fenals, Treasuries, and Prisons; and as it is of a rustic simplicity, it may be employed in Farm-Houses, Stables, Maneges, and Dog-Kennels, Green-Houses, Grottos, Fountains, Gates of Parks and Gardens, and in general, in all places where magnificence is not required, and expence is to be avoided.

Mr. Chambers says that in Town-Building intended for civil purposes, or interior Decorations, the height of the column may be fourteen and a half, or even fifteen modules; which augmentation may be made in the Shaft, without changing any measures either in the Base or Capital: nor need the Entablature be altered; for, as it is composed of few parts, it will be sufficiently bold, though its height be a little less than one fourth of the height of the column.



*The Doric Order*

Project: Doric 4 3 Heights

37	2 1/2
30	7
24	2 1/2
18	2 1/2
12	8 1/2
9	2 1/2
6	2 1/2
3 1/2	2 1/2
3	7 1/2
2	1
1	1
9	5 1/2
8	2 1/2
7	2 1/2

45 Modules

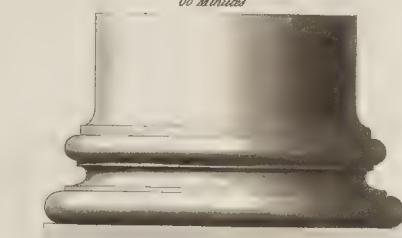
35 Modules

30 Modules



30 Minutes

60 Minutes



Soffit of the Corona & Mutules

45 Modules

30 Modules

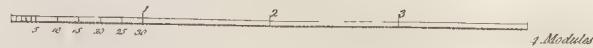


Doric Base

Height Proportions

2 1/2	3 1/2
3 1/2	3 1/2
10 1/2	11 1/2

11 1/2



3 Modules

O F T H E

## D O R I C   O R D E R.

**T**H E height H F (Pl. 2.) of the Doric Column, including its Capital and Base, is sixteen modules or seven diameters, and the height of the Entablature F G four modules; the latter of which being divided into eight parts, two of them are for the Architrave, three for the Frize, and three for the Cornice.

In imitation of Palladio, and all the modern architects, except Vignola, Mr. Chambers makes use of the Attic Base in this Order, Pl. 5; and which, as he observes very well, has the most beautiful appearance of any, though, for variety-sake, when the Doric and Ionic orders are employed together, the Base invented by Vignola, of which a profile is annexed, may sometimes be used: Bernini has used it in the Colonades of St. Peter's, and it hath been successfully applied in many other buildings.

Mr. Chambers gives to the height of the whole Capital thirty-two Minutes. The Frize, or Neck, is enriched with Husks and Roses; as it has been executed by Sangallo at the Farnese, and by Cigoli in Crotile of the Strozzi at Florence, as well as in several buildings of note in this City. The Projection of these Husks and Flowers must not exceed that of the upper Circumference of the Column.

The Architrave is one module in height, and composed only of one Fascie and a Fillet, as at the Theatre of Marcellus: the Drops are conical, as they are in all the antiques; and not pyramidal, as they are, very improperly, made by most of our workmen.

The Frize and Cornice are each of them one module and a half in height: the Metope is enriched with Bull's Skulls, adorned with a Garland of Beads; in imitation of those on the Temple of Jupiter Tonans, at the foot of the Capitol. In some antique fragments, and in a great number of modern buildings, the metopes are alternately enriched with these ox skulls and pateras; but they may be filled with any other ornaments of good forms, and frequently with greater propriety. Thus in Military Structures Heads of Medusa, or the Furies; Thunderbolts, and other symbols of horror, may be introduced: likewise Helmets, Daggers, and Garlands of Laurel, or Oak. But Spears, Swords, Quivers, Bows, Cuirasses, Shields, and the like, must be avoided; because the real dimensions of these things are too considerable to find admittance in such small compartments, and representations in miniature always carry with them an idea of littleness.

Too much Variety in the Ornaments of the Metopes must be avoided, for fear of destroying the unity of the composition: and it is best never to introduce more than two representations, which should not consist of above one, or at most two objects, each of simple forms, and not overcharged with ornaments. In the disposition of these, care must be taken to place them with symmetry, those on the right corresponding with those on the left: Therefore, when a Triglyph happens to be in the middle of a front, it becomes necessary to couple the middle ones, by filling the two metopes, on each side of the central triglyph, with the same sort of ornaments; (as at the Gate of Burlington House); disposing the rest alternately throughout the whole front, as usual. It is likewise to be observed, that the Ornaments of the Metopes are not to project so much as at Bow Church, and at General Wade's House in Burlington-Garden; where they are far more striking than the Triglyphs, which ought to be predominant, being essential and principal parts in the composition.

Of all the orders, the Doric is the most difficult to distribute; on account of the large intervals between the triglyphs. At the Colliseum they are omitted; and so they are in the Colonnades of St. Peter's, and in several

several other buildings at Rome. This indeed obviates the difficulty; but likewise deprives the order of one of its principal ornaments, without which it is very little preferable to the Tuscan.

The ancients employed the Doric in Temples dedicated to Minerva, to Mars, and to Hercules, whose grave and manly dispositions suited well with the character of this order. Surlio says, "It is proper for Churches dedicated to Jesus Christ, St. Paul, St. Peter, or any other saints remarkable for their fortitude, in exposing their lives for the Christian faith." Le Clerc recommends the use of it in all kinds of Military Structures; as arsenals, Gates of fortified Places, Guard Houses, &c. and it may likewise be employed in the Houses of Generals, or other martial men, in Mausoleums erected to their memory, or in Triumphal Bridges or Arches built to celebrate their victories.

Mr. Chambers gives to the Height of the Doric column sixteen modules; which, he says, in buildings where majesty is required is a good proportion: but in others it may be slenderer. Thus Vitruvius makes the Doric column in Porticos higher by half a diameter than in Temples; and most of the modern architects have, on some occasions, followed his example. In Private Houses therefore it may be  $16\frac{1}{2}$ ,  $16\frac{3}{4}$ , or  $16\frac{5}{8}$  modules high; and in interior Decorations even seventeen modules, and sometimes a trifle more; which increase in the height may be made intirely on the Shaft, as in the Tuscan order, without changing either the Base or Capital; also the Entablature may remain unaltered, for it will be sufficiently high.

O F T H E

## IONIC ORDER.

THE height IK (Pl. 2) of the Ionic Column, the Base and Capital included, is eighteen modules, and that of the Entablature four modules and a half, or one quarter of the height of the column, as in the other orders; which is a trifle less than in any of the regular antique Ionics. The Base is Attic, as in all the antiques; and the Shaft of the column may be plain, or fluted with twenty-four Flutings, or twenty only, as at the Temple of Fortune; whose Plan may be a trifle more than a semi-circle, as at the Temple of Jupiter Tonans, and the Forum of Nerva, because they then appear more distinct; and the Fillet, or Interval between them, must not be broader than one third of the breadth of a fluting, nor narrower than one fourth thereof. See Pl. 6. The Ornaments of the Capital are to correspond with the flutings of the shaft; and there must be an Ove above the middle of each fluting. The Volutes are to be traced according to Goldman's method, which is the best. Pl. 7, fig. 1 and 2.

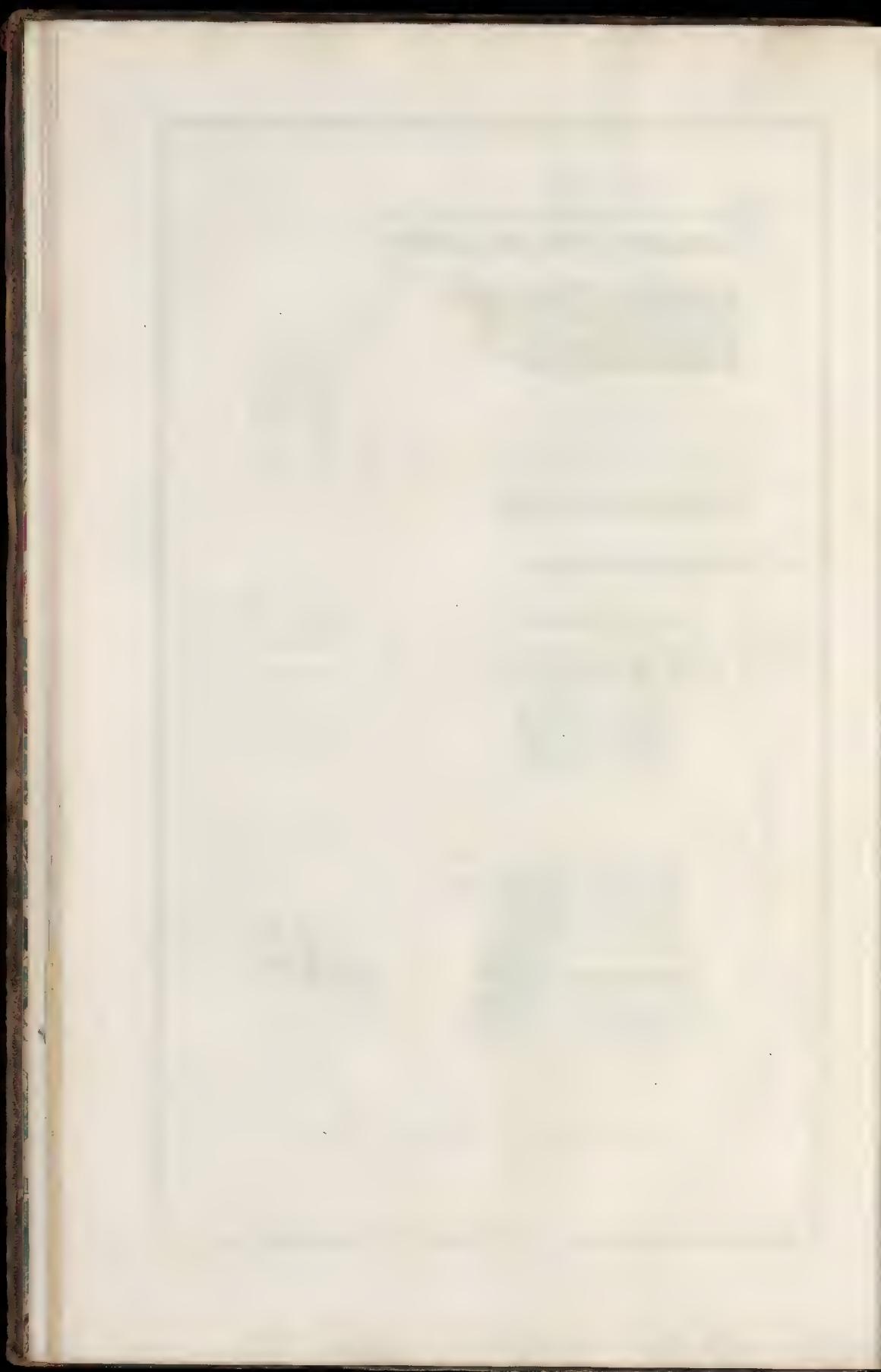
The three parts of the Entablature KL Pl. 2, bear the same proportion to each other in this as in the Tuscan order. The Frize is plain, as being most suitable to the simplicity of the rest; and the Cornice is almost an exact copy from Vignola's design, in which there is a grandeur of style that none of his competitors have arrived at.

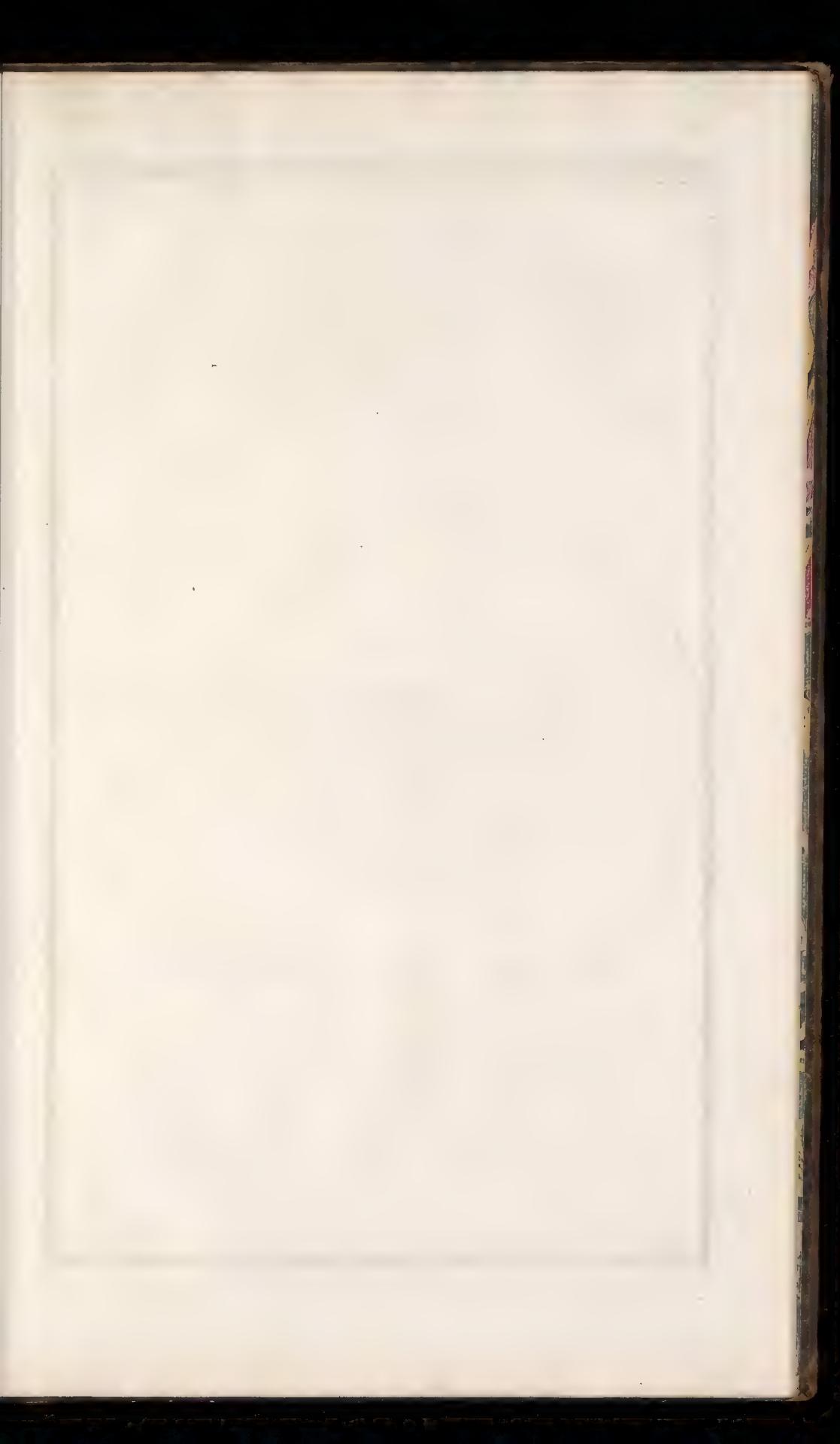
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*The Ionic Order*

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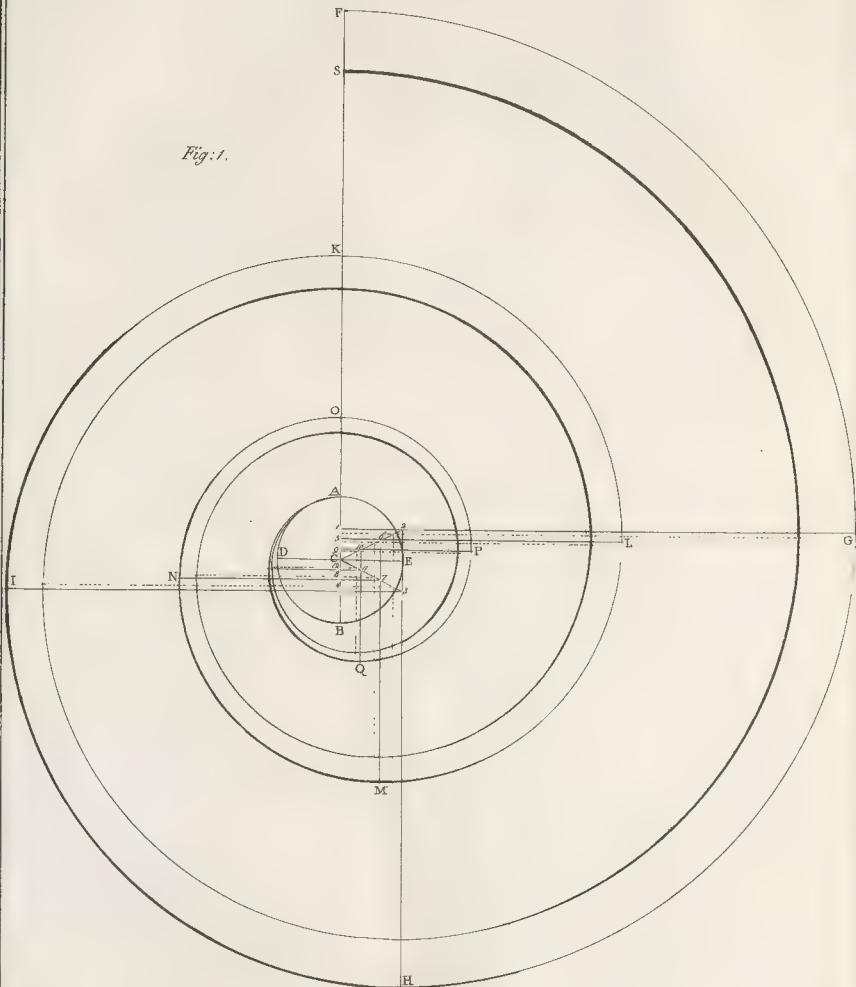
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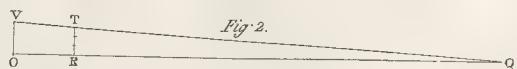


*Goldman's Volute Described*

*Fig. 1.*



*Fig. 2.*



If it be required to reduce this Entablature to two ninths of the height of the column (which, on most occasions, is a proportion preferable to that of one quarter; particularly to eyes habituated to trivial objects), it may easily be done, by making the Module for the Entablature less by one ninth than the Semi-diameter of the Column, dividing it as usual, and observing the same dimensions that are figured in the Design, Pl. 6. The distribution of the Dentil-Band will answer pretty nearly in all the regular Intercolumniations; and in the outer Angle there will be Dentil, as in the Temple of Fortune.

In Interior Decorations, where much delicacy is required, the height of the Entablature may be reduced even to one fifth of the column, by observing the same method, and making the Module only four fifths of the Semi-diameter.

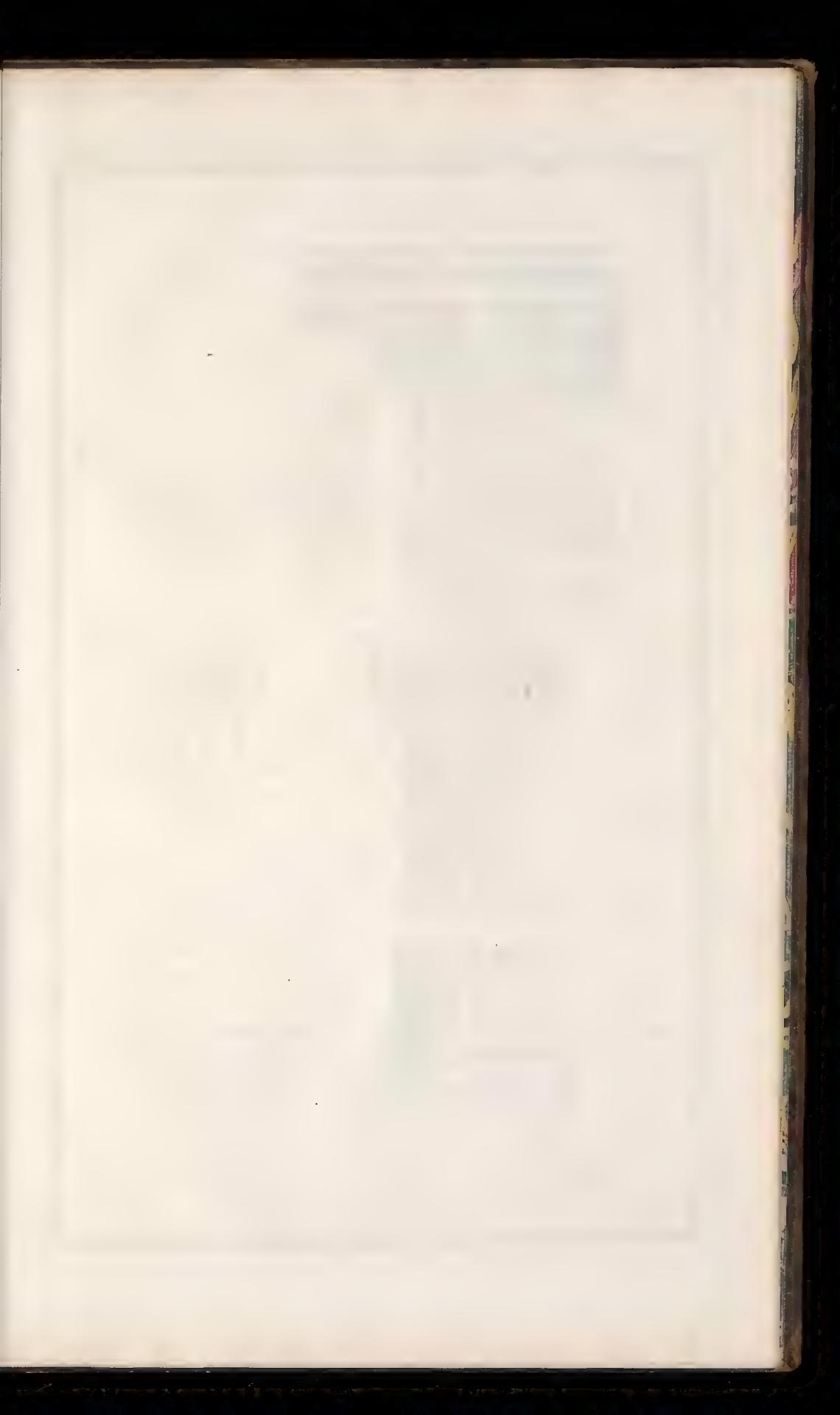
As the Doric Order is particularly affected in buildings dedicated to male saints, so the Ionic is used in such as are erected to female saints of the matronal state. It is likewise employed in the Halls of Justice, in Libraries, Colleges, and other structures that have any relation to arts or letters; in Private Houses and in Palaces, to adorn the Women's Apartments; and, says Le Clerc, "in all places consecrated to peace and tranquillity." The ancients used it in Temples dedicated to Juno, to Bacchus, to Diana, and other deities whose dispositions held a medium between the severe and effeminate.

## GOLDMAN'S VOLUTE DESCRIBED.

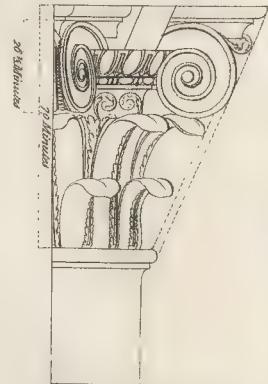
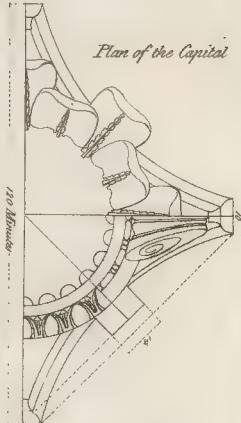
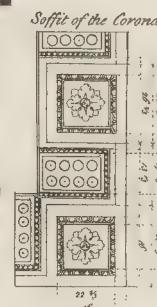
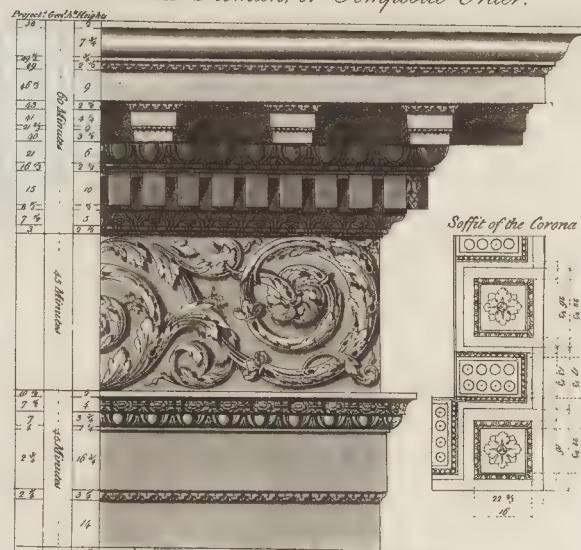
DRAW the Cathetus FC (Pl. 7, fig. 1) whose length must be half a module, and from the point C describe the Eye of the Volute A E B D, of which the diameter is to be  $3\frac{1}{2}$  minutes; divide it into four equal sectors by the diameters A B, D E; bisect the radii C A, C B in 1 and 4; and on the line 1, 4. Construct a square 1, 2, 3, 4, from the center C to the angles 2, 3 draw the diagonals C<sub>2</sub>, C<sub>3</sub>, and divide the side of the square 1, 4 into six equal parts at 5, 9, C, 12, 8: then through the points 5, 9, 12, 8 draw the lines 5, 6, 9, 10, 12, 11, 8, 7, parallel to the diameter E D, which will cut the diagonal in 6, 7, 10, 11; and the

points 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, will be the Centers of the Volute. From the first, center 1, and with the interval  $IF$ , describe the quadrant  $FG$ ; from the second, center 2, and with the interval  $2G$ , describe the quadrant  $GH$ ; and continuing the same operation from all the twelve centers, the Contour of the Volute will be completed.

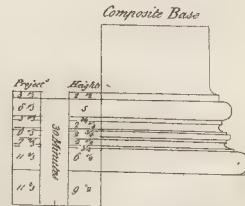
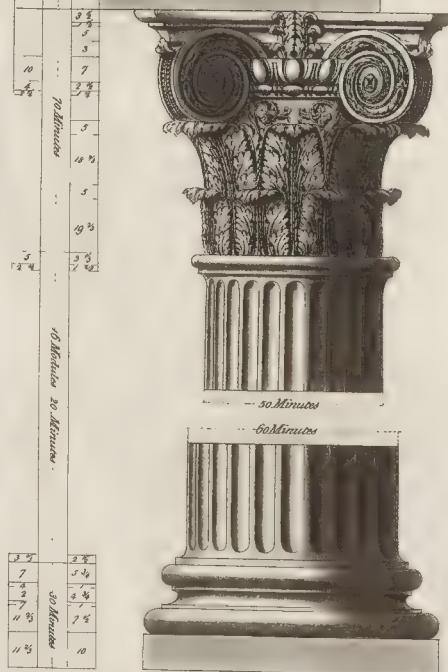
The Centers for describing the Fillet (fig. 1 and 2), are found in this manner: Construct a triangle, of which the side  $OQ$  is equal to the part of the Cathetus  $AF$ , and the side  $OV$  equal to  $C1$ ; on the  $OQ$  place the distance  $OR$  equal to  $FS$  the Breadth of the Fillet, and through the point  $R$  draw the line  $RT$ , which will be to  $C1$  in the same proportion  $RQ$  is to  $OQ$ : place this line on each side of the center  $C$  on the diameter of the Eye  $AB$ ; divide it into three equal parts, and through the points of division draw lines parallel to the diameter  $ED$ , which will cut the diagonals  $C2$ ,  $C3$ , and you will have twelve new centers; from whence the interior Contour of the Fillet may be described, in the same manner as the exterior one was from the first centers.



## The Roman, or Composite Order.



*Angular view of the Capital*



5 10 15      30 Minutes      12      18      24      30      36      42      48      54      60      6 Modules

O F T H E

## COMPOSITE ORDER.

THE height MN (Pl. 2) of the Column, the Base and Capital included, is twenty modules, and that of the Entablature NO five. The Base is Attic, and its measures the same as in the Doric and Ionic orders; but as the module is less, all its parts of course are delicate. The Shaft is enriched with Flutings, which may be to the number of twenty, or twenty-four, as in the Ionic Order.

The Capital (Pl. 8.) is two modules and one third; is of the same kind that all the moderns have employed in this order; and enriched with Leaves of the Acanthus, as all the antique capitals of this sort are. With regard to the method of tracing it, few directions will suffice: for the Designs were all exactly figured according to those of Mr. Chambers. The Curvatures of the Abacus are described from the summits of equilateral triangles; the Projection of the Volutes is determined by a Line drawn from the extremity of the astragal to the extremity of a horn of the abacus; and the Projection of the Leaves is determined by another line drawn from the fillet below the astragal, parallel to the former.

The Foot of the Leaves of the Capital must not project beyond the upper part of the shaft of the column, as at St. Carlo in the Corso at Rome, and at the Banqueting-House in London; for nothing is uglier: neither is the lower row of them to bend forwards, as in many of the antiques,

tiques, and in some modern buildings; because they then hide a great part of the upper leaves, and give a disagreeable form to the whole capital. (Pl. 8.) The different Bunches that compose the Leaves must be strongly marked, and massed in a distinct manner. The Sprigs that spring from between the upper ones, are to be kept flat upon the vase; and the Ornaments of the Volutes are not to project beyond the fillets that enclose them.

The parts of the Entablature bear the same proportion to each other, as in the Ionic and Tuscan Orders. The Architrave is nearly the same with those of Palladio, Vignola, and the Basilica of Antoninus. The Frize is enriched with Foliages, in imitation of those at Nero's Frontispiece; whose most prominent parts ought never to project beyond the uppermost moulding of the architrave.

The Cornice is imitated from Scamozzi; and differs from the Corinthian only in the Modillions, which are flat. The Soffit of the Intervals between the Dentils must be hollowed upwards, behind the little fillet in front, as they are in most of the antiques; which occasions a dark shade, that marks the Dentils more distinctly: and the same must be observed in the Ionic and Corinthian Orders. The Roses in the Soffit of the Corona are not to project beyond its horizontal surface; and care must be taken not to vary them so much as at St. Peter's of the Vatican, because the unity of the composition suffers thereby. The Modillions, or Dentils, might with almost as much propriety be varied (Pl. 8.): it will be best therefore to make them all alike, as they are in most of the antiques, and at Mr. Spencer's magnificent House in the Green Park; that so they may not strike the beholder as distinct objects, but as parts of one great whole. Or they may be of two kinds; which occasions more variety, and no confusion: for the ideas succeed each other so rapidly, that the third takes place before the first is in any degree obliterated; so that nearly the same effect is produced as by a continued succession of the same object. But though this variety be allowable in small objects, which the eye peruses at a single glance, and in such as are merely accessory, and do not influence the general form of the composition; yet it is by no means to be tolerated in columns, and other large, or essential parts, which, from the number of their constituent points, are not conveyed to the mind at once, either with ease or perfect clearness, and therefore, if varied, cannot fail of exciting confused ideas.

The Romans used the Composite Order more frequently in their triumphal arches than in any other buildings; meaning, as Serlio supposes, to express their dominion over those nations that invented the orders of which this was composed. "It may, says Le Clerc, be used with propriety, wherever elegance and magnificence are to be assembled;" but it is more particularly adapted for Buildings intended to commemorate any signal Event, or to celebrate the Virtues and Actions of Conquerors or Legislators: because the Capitals, and other Ornaments (Pl. 8), may be composed of Emblems, and allusive Representations; which is agreeable to the custom of the ancients; as appears by multitudes of fragments of capitals, and other members of architecture, to be seen in different parts of Rome; some of which are represented in the second plate of the Composite Order.

The Composite Entablature may be reduced to two ninths of the Column (for which, to avoid fractions, Mr. Chambers takes four modules and a half), by making the Module only nine tenths of the Semi-diameter, and observing the measures as in the design; and there will be a Dentil in the outer Angle, as in the Ionic Order. It may likewise, if required, be reduced to one fifth; by making the Module four fifths of the Semi-diameter. Though, in cases where it is necessary to diminish it so much, it will be best to employ the Ionic Cornice, which, being composed of fewer parts, will still retain an air of grandeur, notwithstanding the smallness of the whole mass.

Most authors give the last place to the Composite Order, as being the last invented, and a compound, which, of course, ought to be preceded by all the simples. Mr. Chambers has followed Scamozzi's method; his Arrangement appearing the most natural; for his Orders succeed each other according to their degrees and strength, and in the progression that must absolutely be observed, whenever they are employed together.

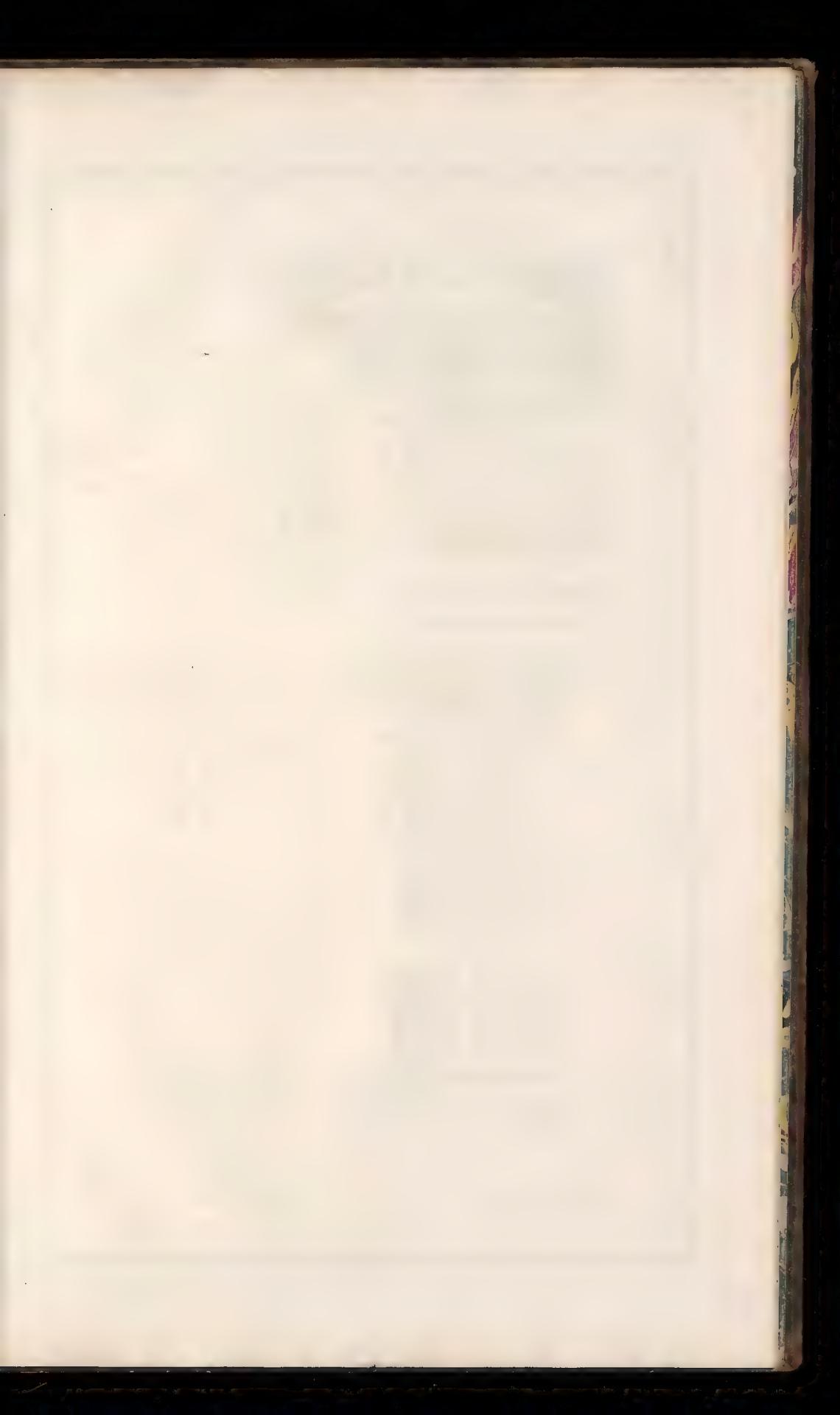
O F T H E

## CORINTHIAN ORDER.

THE height PQ (Pl. 2) of the Corinthian Column is twenty modules; and the Entablature OR is five: the Base of the Column may be either Attic or Corinthian; they are both beautiful. Palladio and Scamozzi have employed the Attic Base, enriched with Astragals: but so frequent a repetition of the same form hath a bad effect; as may be seen at the Church of St. Martin in the Fields, and at the Bank.

If the Entablature be enriched (Pl. 9.), the Shaft of the Column may be fluted; provided it be not composed of variegated marble: for a diversity of colours renders even smooth surfaces confused, and ornaments of sculpture only serve to make the confusion greater. The Flutings may be filled to one third of their height with Cablings, as in the inside of the Pantheon; which will strengthen the lower part of the Column, and make it less liable to injury: but if the columns are not within reach, or subject to be hurt by passengers, these are better omitted; for the general hue of the column will then be more even. In some very rich Buildings, the Cablings are composed of Reeds, Ribbands, Husks, Flowers, &c. (at the Tuilleries in Paris, there are some exquisitely wrought by Jean Gougeon's own hands) but it is better to reserve such niceties in interior decorations. In the exterior, whatever doth not contribute to the general effect of the whole building (Pl. 9.), is in a great measure useless, and an expence that might more judiciously be employed in places where it would be more attended to.

In

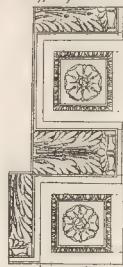


### The Corinthian Order

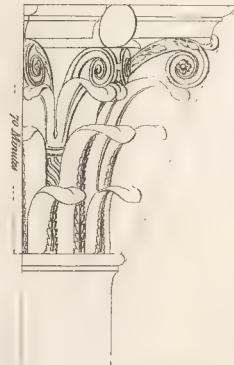
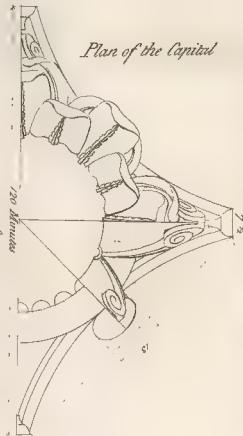
Proportions, One Module.



Soffit of the Corona



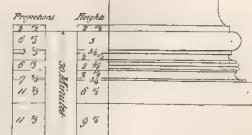
Plan of the Capital



Angular view of the Capital



Corinthian Base



30 Minutes 6 Modules

In general, excessive ornaments, though they increase the magnificence of a building, always destroy the grandeur of its effect. The parts that in themselves are large, and so formed and disposed as to receive broad masses and strong impressions of light and shade, will of course excite great ideas: but if they are broken into a number of small divisions, and their surfaces so varied as to catch a thousand impressions of light, demi-tint, and darkness, the whole will be confused, trifling, and incapable of causing any grand emotions.

The Capital is enriched with Olive-Leaves, as almost all the antiques at Rome of this order are; the acanthus being seldom employed but in the Composite. De Cordemoy however prefers the Acanthus; and observes, "that flexible sprigs, which accompany the leaves of that plant, may more naturally be supposed to form the Contour of the Volute, than the stiff branches of a laurel or olive. It is strange, says he, that people soon cease to esteem what is natural: nature and reason must always be violated; and we prefer a confused jumble of little pointed leaves of the olive or laurel, to the simple and graceful Contours of the Acanthus."

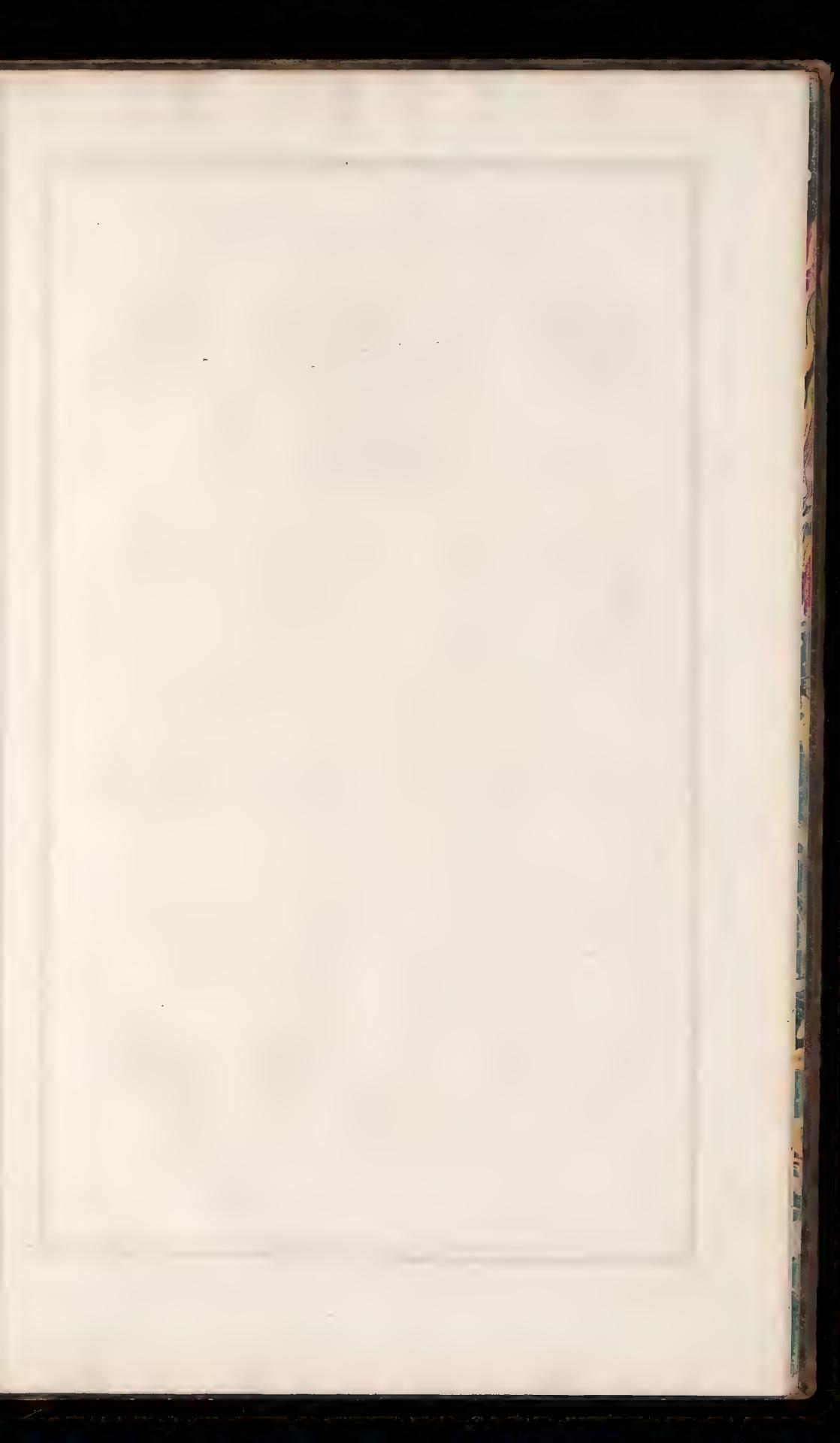
With regard to the manner of tracing and working the Capital, the Designs, together with what hath been said on the same head under the Composite Order, will sufficiently explain it,

The divisions of the Entablature (Pl. 9.) bear the same proportion to each other as in the Tuscan, Ionic, and Composite Orders. The Frize is enriched with a Bas-Relief, composed from various fragments in the Villa Medici at Rome. The parts and ornaments of the Cornice are all regularly disposed: the Coffers in the Soffit of the Corona are square, and the Borders round them alike on all fides; as they are at the Arch of Titus, and as Palladio hath made them.

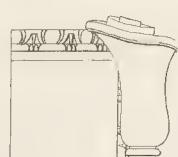
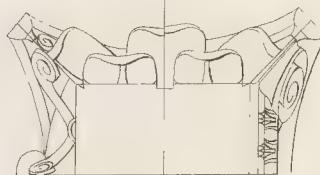
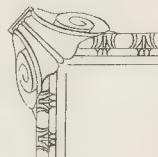
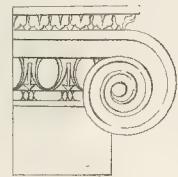
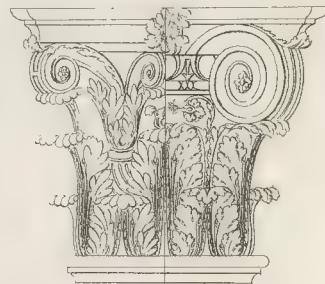
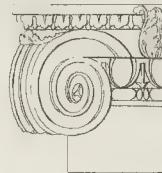
When a Modillion Cornice is employed on a Concave Surface, the Sides of the Modillions must tend towards the center of the curve, as in the Pantheon; and the same must be observed with regard to the Dentils: but on a Convex Surface, the Sides of both must be parallel to each other; for it would be disagreeable to see them narrowest where they spring out of the cornice.

The Corinthian Entablature may be reduced to two ninths, or one fifth, of the height of the Column, by the same rule as in the Ionic and Composite Orders. But when it is necessary to make it so small as one fifth, it will be best to use the Ionic Entablature, as Palladio hath done in the Peristyle of the Olympic Theatre at Vicenza, and in many other of his buildings; or to retrench the Dentils of the Cornice, as in Serlio's and Scamozzi's Profiles; the part of the Cornice under the Modillion-Band being composed only of the Ovolo and Ogee, separated by a Fillet; as at the Temples at Trevi, and of Scifi in Umbria, mentioned by Palladio in his fourth book.

The Corinthian Order (Pl. 9) is proper for all Buildings, where Delicacy, Gaiety, and Magnificence are required. The ancients used it in Temples dedicated to Venus, Flora, Proserpine, and Nymphs of Fountains; because the flowers, leaves, and volutes that adorned it, seemed well adapted to the delicacy of these Deities. As it is the most magnificent of all the Orders, it is extremely proper for Palaces, public Squares, and Churches dedicated to the Virgin Mary, or other Virgin Saints; and, on account of its Gaiety, it may likewise be used in Theatres, Banqueting-Rooms, and all places consecrated to Mirth and Pleasure.



### *Plans and Elevations of Pilaster Capitals*



### *Pedestals for the Orders*

Comp. & Corinthian	
Pyram.	High'
1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90
10	100
11	110
12	120
13	130
14	140
15	150
16	160
17	170
18	180
19	190
20	200
21	210
22	220
23	230
24	240
25	250
26	260
27	270
28	280
29	290
30	300
31	310
32	320
33	330
34	340
35	350
36	360
37	370
38	380
39	390
40	400
41	410
42	420
43	430
44	440
45	450
46	460
47	470
48	480
49	490
50	500
51	510
52	520
53	530
54	540
55	550
56	560
57	570
58	580
59	590
60	600
61	610
62	620
63	630
64	640
65	650
66	660
67	670
68	680
69	690
70	700
71	710
72	720
73	730
74	740
75	750
76	760
77	770
78	780
79	790
80	800
81	810
82	820
83	830
84	840
85	850
86	860
87	870
88	880
89	890
90	900
91	910
92	920
93	930
94	940
95	950
96	960
97	970
98	980
99	990
100	1000

O F

## P I L A S T E R S.

PILASTERS differ from columns in their plan only; which is square, as that of columns is round (Pl. 10). Their Bases, Capitals, and Entablatures have the same parts, with the same heights and projections, as those of columns; and they are distinguished, in the same manner, by the names of Tuscan, Doric, Ionic, Composite, and Corinthian.

Of the two, the column is the most perfect. Nevertheless, there are various occasions in which Pilasters may be employed with great propriety.

Pilasters are employed in Churches, Galleries, Halls, and other interior Decorations, to save room; for as they seldom project beyond the solid of the walls more than one quarter of their diameter, they do not occupy near so much space, even as engaged Columns. They are likewise employed in Exterior Decorations: sometimes alone instead of columns, on account of their being less expensive; as at the Duke of Queensberry's House in Burlington-Garden, General Wade's House in the same place, and in many other buildings in London. At other times they accompany columns, being placed behind them to support the architraves, where they enter the building; as in the Pantheon at Rome, and in the Porch of St. Martin in the Fields, Westminster; or on the same line with them, to fortify the angles; as in the Portico of Septimius at Rome, and in the Church of St. Laurence Jewry.

G

When

When Pilasters are used alone, as principal in the composition, they should project one quarter of their diameter beyond the walls; which gives them a sufficient boldness, and, in the Corinthian and Composite Orders, is likewise most regular; because the Stalks of the Voluts, and the small Leaves in Flank, are then cut exactly through their middles: but if the Cornice of the Windows should be continued in the Interpilasters, as is sometimes usual---or if there should be a Cornice to mark the separation between the principal and second story, as at the Mansion House---or large Imposts of Arches, the Projection must be increased, provided it is not otherwise sufficient to stop the most prominent parts of these Decorations; it being very disagreeable to see several of the uppermost Mouldings of an Impost or Cornice cut away, in order to make room for the Pilasters, while the Cornice or Impost on each side projects considerably beyond it; as at St. Peter's of the Vatican, and several other buildings at Rome.

It is sometimes customary to execute Pilasters without any Diminution. In antiques there are several instances thereof. Nevertheless it is certain, that diminished Pilasters are, on many accounts, much preferable. There is more variety in their form; their capitals are better proportioned, both in the whole, and in their parts, particularly in the Composite and Corinthian Orders: and the irregularities occasioned by the passage of the architraves, from diminished Columns to undiminished Pilasters, are avoided; as are likewise the difficulties of regularly distributing the modillions and other parts of the Entablature, either when the Pilasters are alone, or accompanied with Columns.

The Shafts of Pilasters are sometimes adorned with Flutings, in the same manner as those of columns; the Plan of which may be a trifle above a Semi-circle; and they must be to the number of seven on each Face, which makes them nearly of the same size as those of the columns. The Interval between them must be either one third, or one fourth of the fluting in breadth; and when the Pilaster is placed on the pavement; and liable to be broken, the Angle may be rounded off, in the form of an astragal; between which and the adjoining fluting there must be a Fillet, or Interval, of the same size with the rest; as in the Porch of the Panthæon at Rome. The Flutings may, like those of columns, be filled with Cablings, to one third of their height; either plain, and shaped like an astragal, or enriched, according as the rest of the composition is simple, or much adorned.

adorned. Scamozzi is of opinion, that there should be no Flutings on the sides of engaged Pilasters, but only in Front. When Cornices or Imposts are continued quite home to the Pilaster, this is to be particularly observed; because the different mouldings of those parts, entering upon these cavities of the flutings, are cut off in irregular and very disagreeable figures: but if the flanks of the Pilaster are entirely free, it will be as well to enrich them in the same manner with the front: provided the flutings can be so distributed as to have a fillet or interval adjoining to the wall; which is necessary to mark the true shape of the Pilaster distinctly.

The Capitals of Tuscan or Doric Pilasters are profiled in the same manner as those of the respective columns: but in the Capitals of the other Orders there are some trifling differences to be observed. In the Antique Ionic Capital, the extraordinary projection of the Ovolo makes it necessary either to bend it inwards considerably towards the extremities, that it may pass behind the volutes, or instead of keeping the volutes flat in Front, as they commonly are in the Antique, to twist them outwards for the same end.

What has been said, with regard to the passage of the Ovolo behind the Volutes in the Ionic Order, must likewise be remembered in the Composite; and in the Corinthian, the lip or edge of the Vase, or Pasket, may be bent a little inwards towards its extremities; by which means it will easily pass behind the volutes. The Leaves in the Corinthian and Composite Capitals, must not project behind the top of the shaft, as they do at St. Carlo in the Corso at Rome, and in the Banqueting-House at Whitehall; but the Diameter of the Capital must be exactly the same as that of the Top of the Shaft: and to make out the thickness of the small Leaves, their edges may be bent a trifle outwards; and the large angular Leaves may be directed inwards, in their approach to them, as in the annexed design, and as executed in the Church of the Roman College at Rome; where the small leaves have a considerable thickness, though the diameter of the capital is exactly the same as that of the shaft. In each Front of the Composite and Corinthian Pilaster-Capital, there must be two small Leaves, with one entire, and two half large ones. They may be of Olive, Acanthus, Parsley, or Laurel, and be divided and wrought in the same manner as those of the columns are; the only difference being, that they will be somewhat broader.

O F

## P E D E S T A L S.

A PEDESTAL is composed of three principal parts; which are, the Base, the Dye, and the Cornice (Pl. 10). The Dye is always nearly of the same figure; being constantly either a cube, or a parallelopiped; but the Base and Cornice are varied, and adorned with more or fewer mouldings, according to the simplicity or richness of the composition in which the Pedestal is employed. Hence Pedestals are, like columns, distinguished by the names of Tuscan, Doric, Ionic, Composite, and Corinthian.

With regard to the proportion that their height ought to bear to that of the Columns which they are to support, it is by no means fixed; the ancients, and moderns too, having in their works varied greatly in this respect, and adapted their proportion to the respective purposes for which the Pedestals were intended. Mr. Chambers gives to the Pedestal three tenths of the height of the respective Columns of each order, but he says that it is not necessary to adhere always to this proportion; they may be higher or lower, as the occasion shall require. It is however to be observed, that when Pedestals are profiled under each column, and the Dye is much less than a square in height, the Pedestal hath a clumsy figure: and when a Pedestal of the same kind exceeds one third of the height of the column, it hath a lean and unsolid appearance: but if they are continued without any breaks, this need not be attended to; though indeed, there are very few occasions in which Pedestals higher than one third of the column ought to be

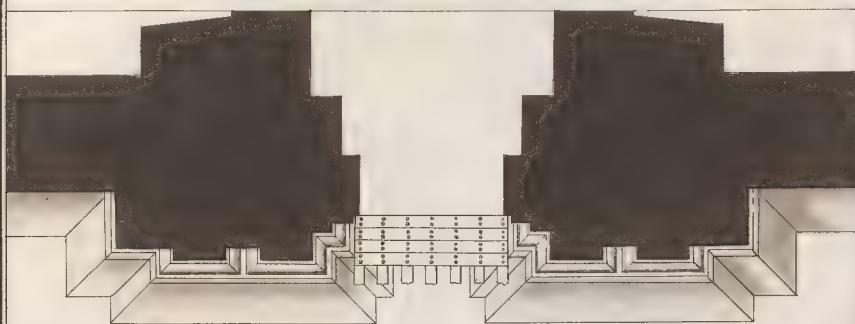
be suffered, as they lessen too much the parts of the Orders, and become themselves too principal in the composition.

In respect of the division of the Pedestal, if the whole height be divided into nine equal parts, one of them may be given to the height of the Cornice, two to the Base, and the remaining six to the Dye; or if the Pedestal is lower than ordinary, it will be better to divide its height into eight parts only, giving one of them to the Cornice, two to the Base, and five to the Dye; as Palladio hath done in his Corinthian Order, and Perrault in all the Orders. The breadth of the Dye is always made equal to that of the Plinth of the Column: the projection of the Cornice may be made equal to its height; and the Base being divided into three parts, two of them will be for the height of the Plinths, and one for the Mouldings, whose projections must be less than that of the Cornice, so that the whole Base may be covered and sheltered by it.

It is sometimes customary to adorn the Dyes of Pedestals with projecting Tablets, or Pannels sunk in, and surrounded with Mouldings. The former of these ought seldom to be admitted, as such Tablets alter the general figure of the Pedestal, and, if they project much, give it a heavy look: and the latter should be reserved for very large Pedestals only, such as those that support the Trajan and Antonine Columns at Rome, and the Monument in London; where they may be adorned with Bas-reliefs, analogous to the occasion on which the Column was erected. But in Buildings the Pedestals are too small to admit of these ornaments, which serve only to weaken them, and give them a trifling appearance.

F I N I S.

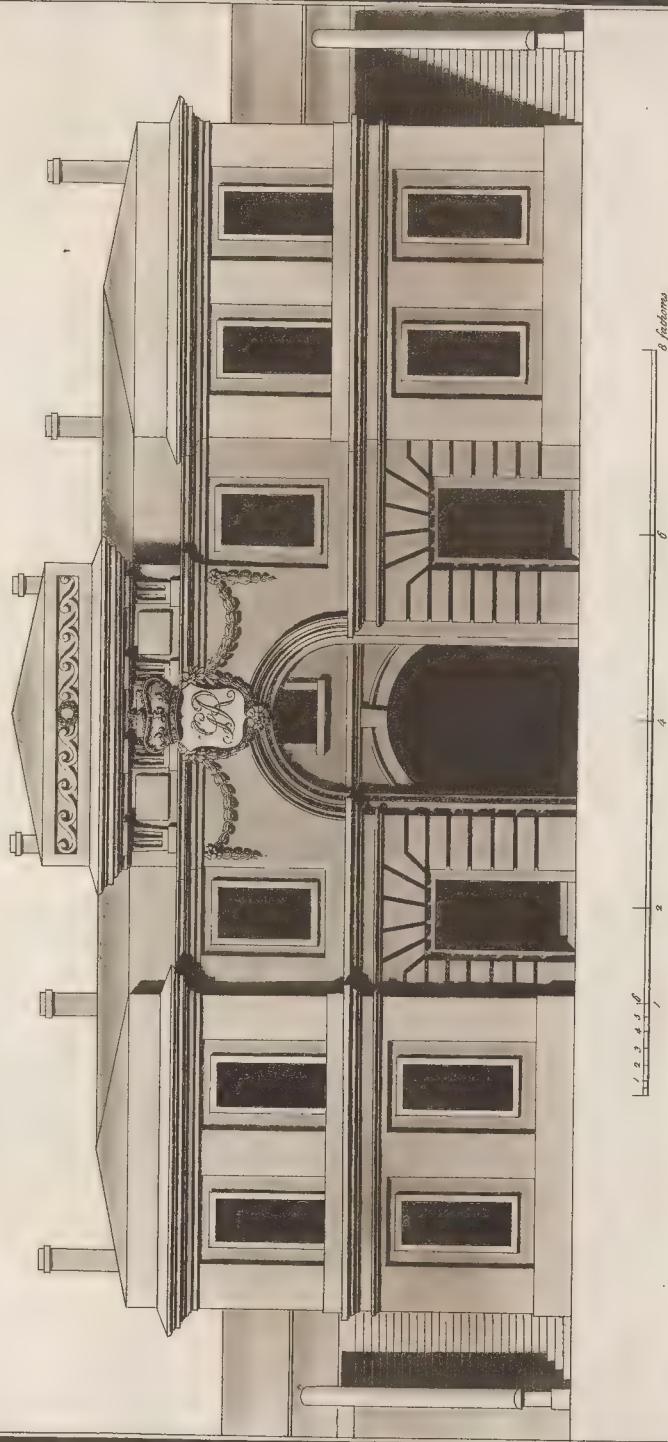


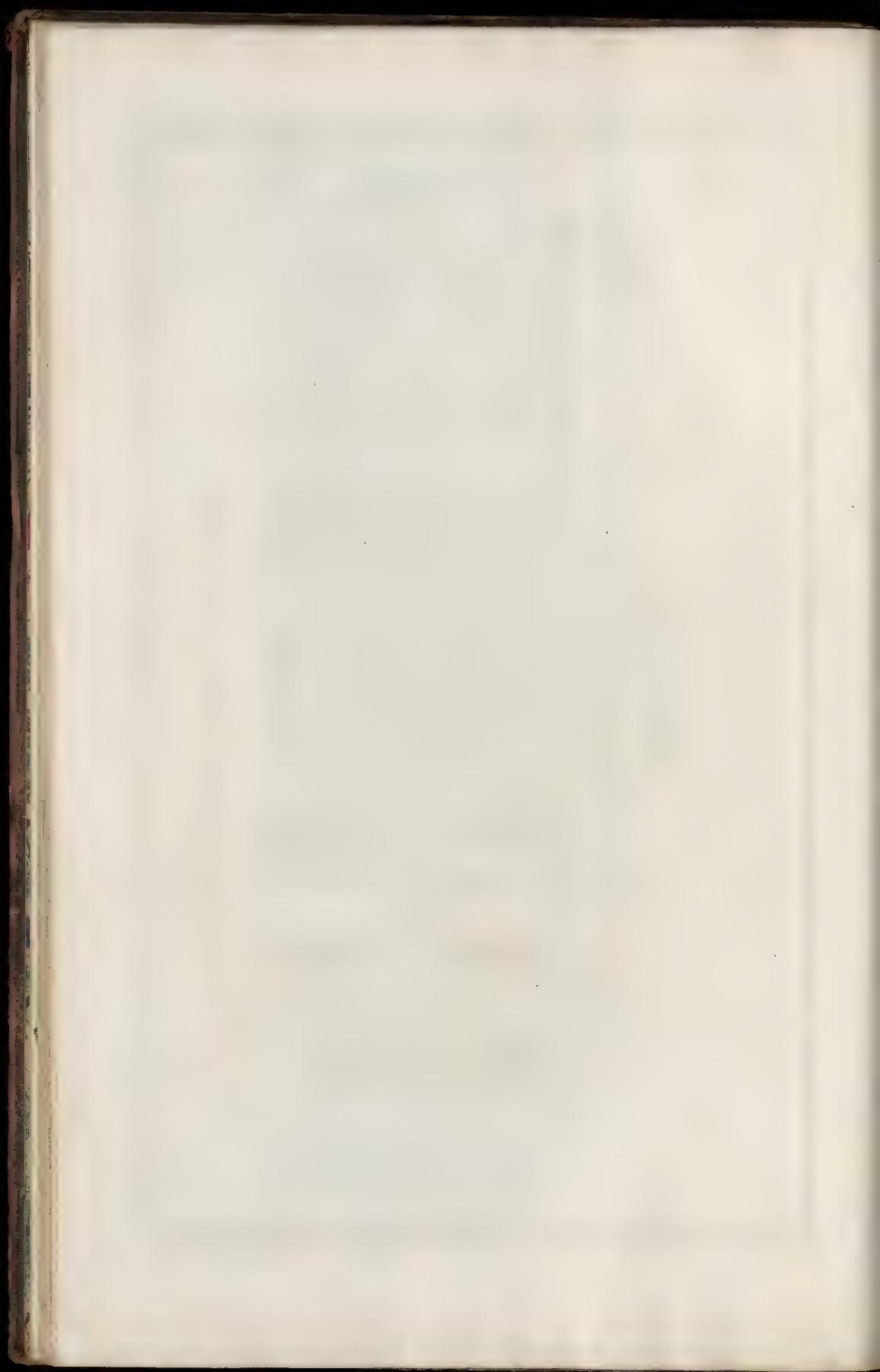
*Geometrical Elevation of a Town Gate*

1 2 3 4 5 6 feet



Inside Decoration of a Towns Gate





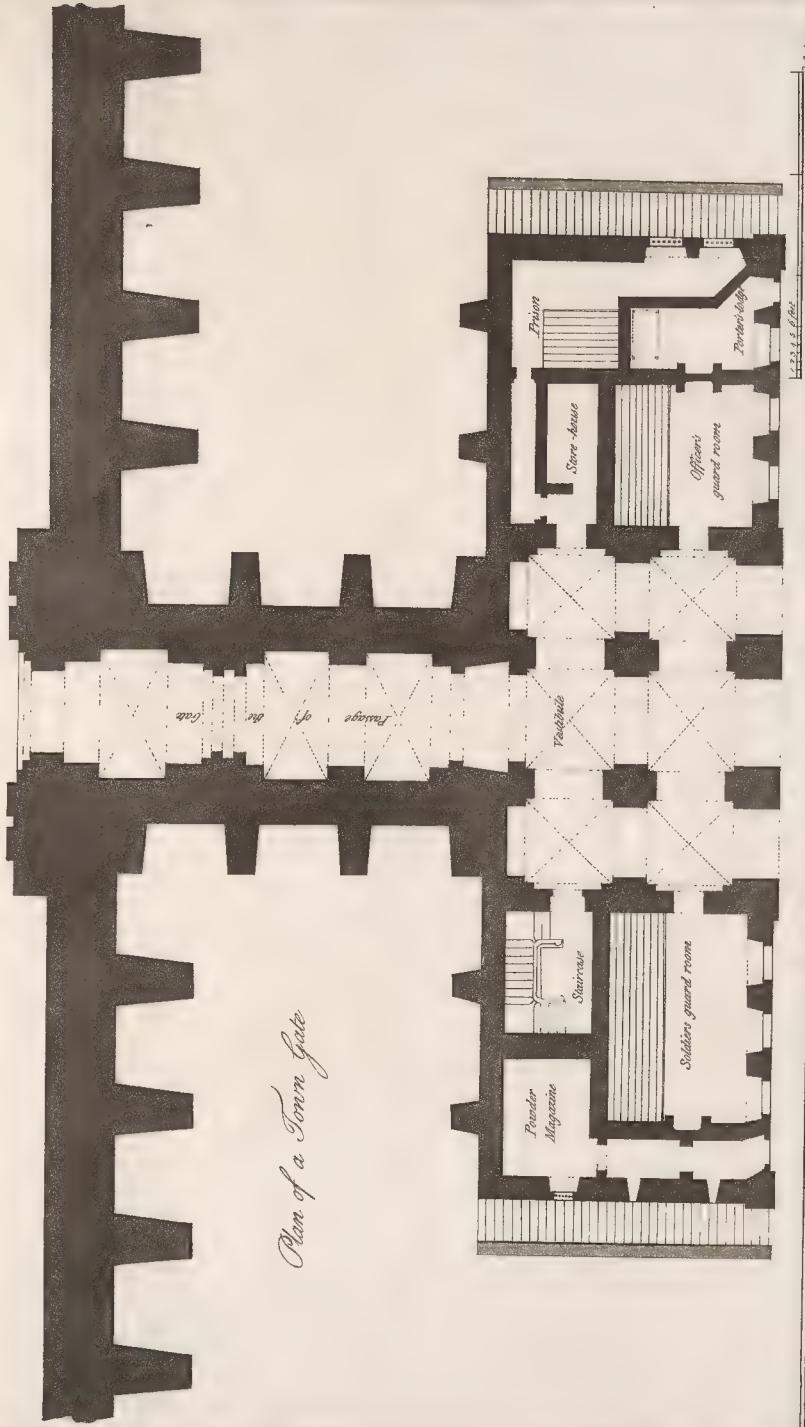
*Geometrical elevation of a Town Gate.*



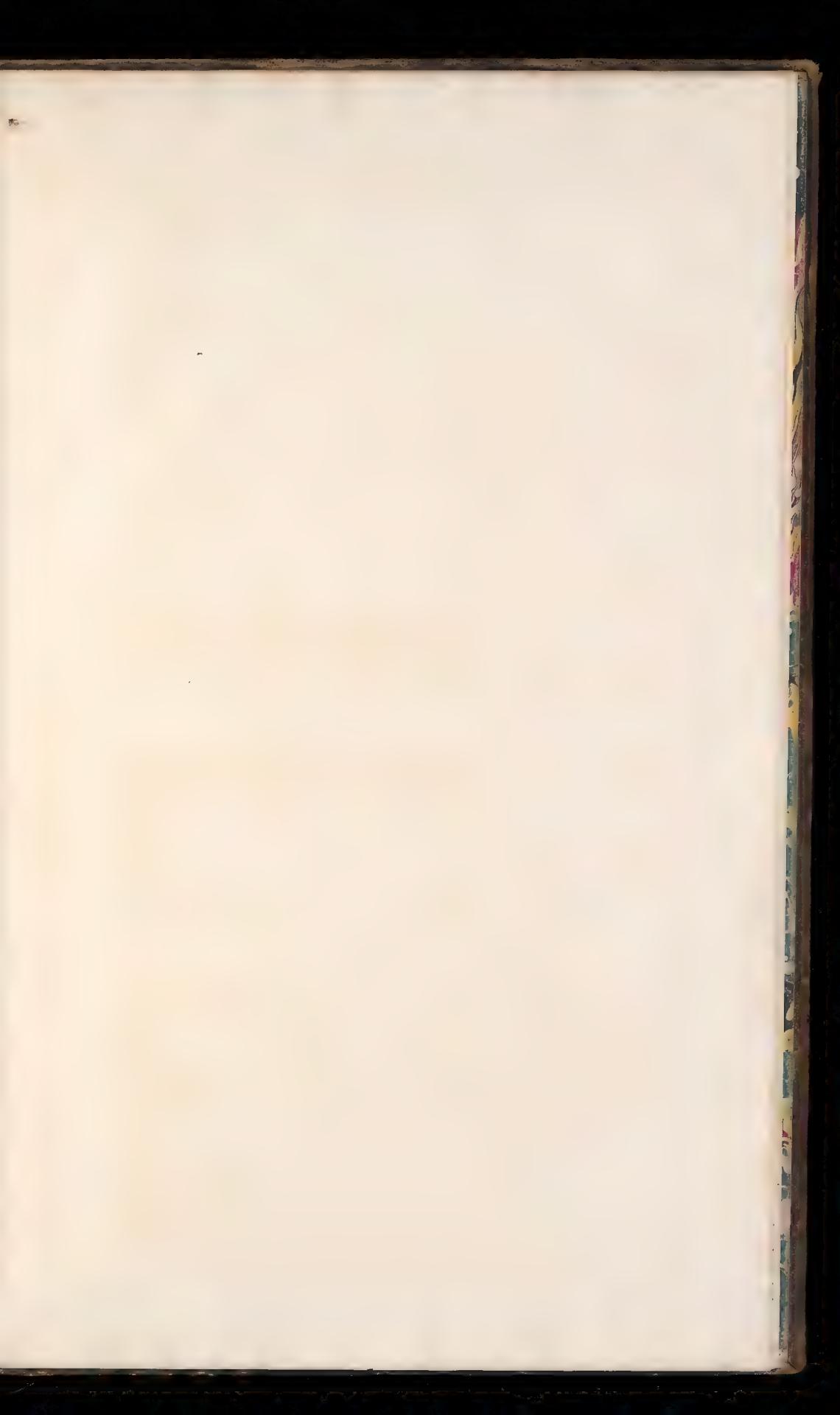
1 2 3 4 5 10 15 20 25 30 feet



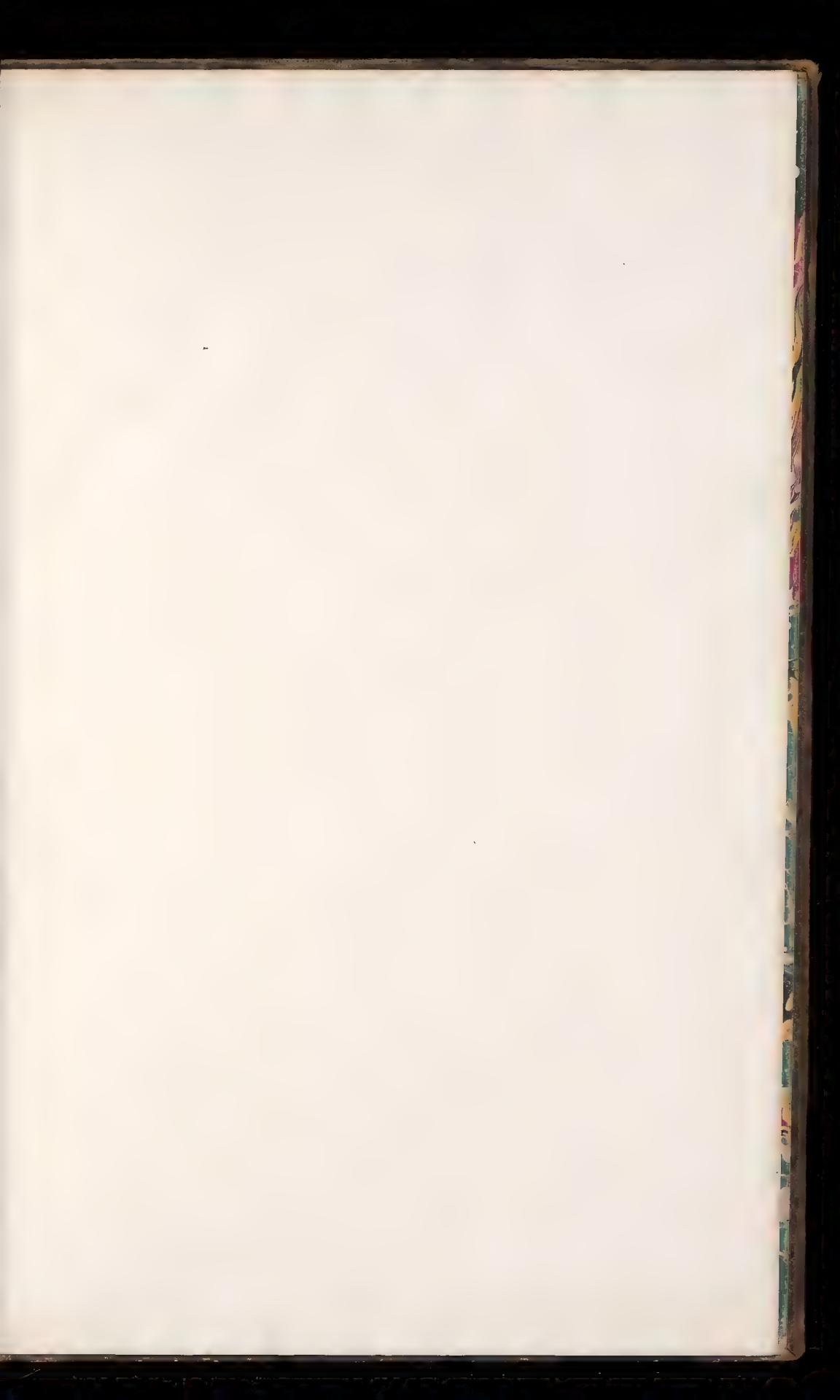
*Plan of a Town Gate*

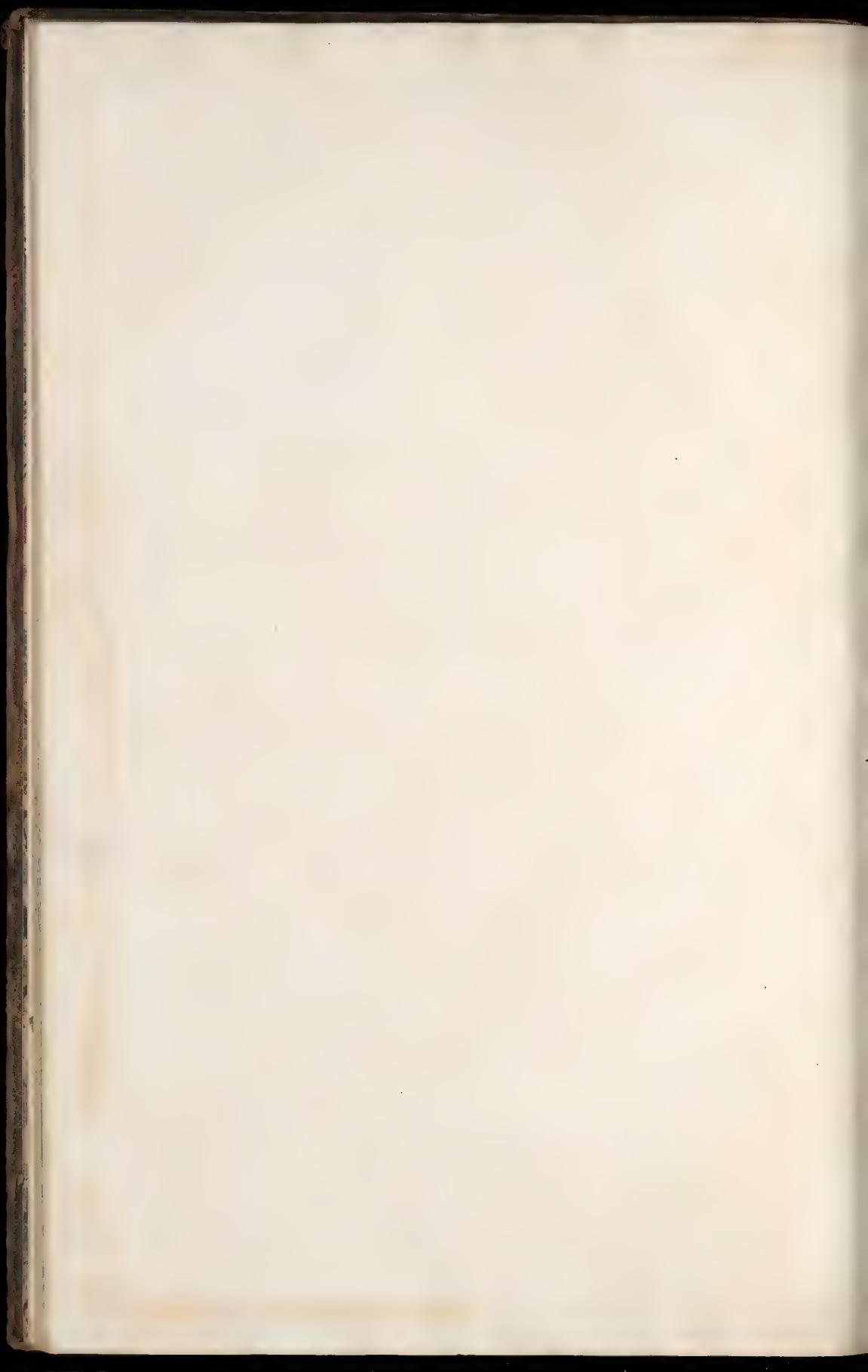












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